

ECE100

1908-2008



ECE Centennial: 1908-2008

100th Anniversary of Electrical Engineering at the University of Maryland

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Compiled by Ted Knight and Jess Molina

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I. A MESSAGE FROM THE CHAIR

“When the expectations of wireless experts are realized everyone will have his own pocket telephone and may be called wherever he happens to be.” *Hampton’s Magazine*, 1908

One hundred years ago this month, a new curriculum was established in electrical engineering at the University of Maryland. In 1908, electrical engineering represented an emerging new field at the university, whose science curriculum focused primarily on agricultural education to train the state’s farmers, and an engineering program that initially revolved around mechanical engineering.

In his book *America 1908*, author Jim Rasenberger, describes that year of astonishing innovation, and quotes the *New York World*, asking: “What will the year 2008 bring us? What marvels of development await the youth of tomorrow?” At the time, few could have predicted how profoundly different the world would be in 100 years. Most of the innovations of the 20th and early 21st centuries that have both improved our quality of life and extended our life expectancy evolved from electrical engineering, and would not have been possible without it. It is hard to imagine that in 1908 the life expectancy of Marylanders was about 50 years. Electrical engineers have changed our lives completely, through innovations in, for example, healthcare, transportation, entertainment, and communications. Few of us stop to consider this because we take so many of our ubiquitous daily luxuries for granted. But the fact remains that without electrical engineering, life would be, in the words of Thomas Hobbs, “poor, nasty, brutish, and short.”



To put it simply, electrical engineers bring us modern life.

On September 26-27, 2008, this is the general theme we will celebrate in College Park. From our inception in 1908, to the addition of the computer engineering major in 1997, and on to our 100th anniversary year in 2008, ECE at Maryland remains committed to improving life for humankind. At our Centennial Celebrations, leaders in engineering, science, and technology will discuss some of the most important global problems and challenges that electrical—and computer—engineers must help solve in the next 100 years: creating technology for sustainable living; improving alternative energy technology; responding to climate change; maintaining the efficiency of vast communication networks; managing ever-growing, complex information systems; developing innovative new treatments for the deadliest human diseases; and making clean water accessible to the world's growing population. What will the year 2108 bring us?

On September 26-27, we will gather on the College Park campus to hear Dean Kamen and our distinguished forum guests offer ideas on how electrical and computer engineers can address these critically important global issues.

A handwritten signature in black ink, appearing to read 'Pat O'Shea'.

Pat O'Shea, M.S. '82, Ph.D. '86

ECE Department Chair

September 2008



II. 100 YEARS OF CHANGE: 2008 vs. 1908

an excerpt from *America 1908*, by Jim Rasenberger, used by permission from the author

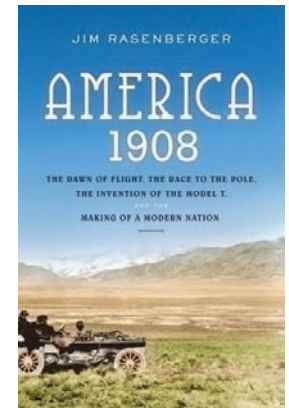
The America of 1908 will be, in scattered glimpses, familiar to readers of 2008; if we squint, we might even mistake it for our own. There were forty-six states in 1908, nearly the full deck. Oklahoma had just been admitted to the union (1907), and Arizona and New Mexico were next (1912). Alaska and Hawaii were still half a century from statehood, but the basic geography of the country we know was drawn and settled.

In the cities, middle-class life had assumed some of the shapes and contours of modernity familiar to us. People rode subways to work, lit their homes with electricity, and spoke on the telephone. They vacuumed their floors with vacuum cleaners, washed their clothes with washing machines, and lived surrounded by products whose brand names we recognize: Kellogg's and Nabisco, Coca Cola and Pepsi, Gillette and Hoover, Budweiser and Pabst, Ford and Buick, among many others.

Though still years away from radio and decades from television, they enjoyed their leisure much as we do. The more affluent disported themselves with tennis and golf. The less affluent preferred baseball and flocked to ballparks in record numbers to watch their champions battle for glory. Movies were very new but already immensely popular; over the previous few years, nickelodeons had sprung up in every small town around the country, from Florida to Alaska.

Americans of 1908 were fascinated, like us, by technology, including wireless technology of the sort being developed at the time by Guglielmo Marconi and Lee De Forest, among others. They anticipated the day when they would walk around with telephones attached to their ears, and when voices and images would whisk through the air across continents and oceans. They paid attention to their diets, read newspaper ads touting advances in plastic surgery, worried that Christmas was becoming too commercialized, that the environment was being ravaged, and that life was speeding up and passing them by. They tried to slow life down by reaching for an Eastman Kodak "brownie" camera and taking a snapshot.

One other thing Americans of 1908 shared with those of us who live in 2008 was a presidential election. They were coming off two terms of a Republican President who had abruptly set their country on a new course. Like our current outgoing president,



theirs was a wealthy Ivy league-educated easterner who had gone west as a young man and made himself into a cowboy. It was clear then, as it is now, that the country was heading into a new world defined by as yet unwritten rules, and that the man about to exit office bore some responsibility for this.

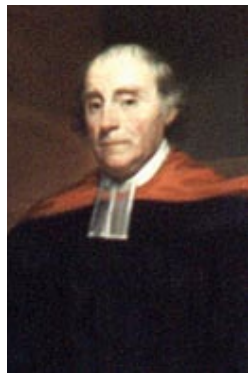
But like our respective presidents, we are more different than we are the same. The following chart illustrates a few of our differences.

	1908	2008
President:	T. Roosevelt (R) (1901-1909)	G.W. Bush (R) (2001-2009)
Pres. Candidates:	W. H. Taft (R) & W. J. Bryan (D)	J. McCain (R) & B. Obama (D)
Number of States:	46	50
Population:	87 million	300 million
Caucasian/Other:	90%/10%	75%/25%
Life Expectancy (white):	49 years	78 years
Life Expectancy (black):	35 years	73 years
Top causes of death:	Pneumonia, Tuberculosis	Heart Disease, Cancer
Number of automobiles:	200 thousand	136 million
Number of horses:	20 million	7 million
Homes with electricity:	7%	99.9%
Graduated high school:	10%	85%
Divorce rate:	10%	50%
Suicide rate:	12.6 per 100,000	10.6 per 100,000
Average work week:	60 hours	40 hours
Women working:	20%	60%
Worker fatalities:	35,000	6,000



III. A Brief History: Electrical Engineering at the University of Maryland

Adapted from “Engineering at the University of Maryland: The First 100 Years,” compiled by George E. Gilbert '37 and Dr. George E. Dieter



William Smith

The Department of Electrical and Computer Engineering (ECE) can trace its roots back to the origins of the University of Maryland, an entity that began in 1784. William Smith, a leader in education in Maryland, founded Washington College in the eastern shore town of Chestertown in 1782 by raising 5,000 pounds sterling, including a contribution of 50 guineas from the college’s namesake, George Washington. Two years later, Smith, who would later serve as the first provost of the University of Pennsylvania, persuaded the Maryland General Assembly to make Washington College and the newly chartered St. John’s College in Annapolis “one university by the name of the University of Maryland combined under one supreme legislative and visitational jurisdiction.” These two colleges, located on opposite sides of the Chesapeake Bay, were two of the nation’s first 20 colleges, and offered great promise as the basis for the state’s newly formed university.

For five years, the University of Maryland was supported by appropriations from Maryland’s state legislature, and continued to grow and develop. However, after Smith left Maryland for Pennsylvania in 1789, support for the state’s university eroded, and in 1805, the legislature declared the act that had created the university to be void, and the two colleges continued on privately and independently.

The legislature authorized the state’s College of Medicine in Baltimore to become the University of Maryland in 1812, with no state financial support or control. Later, in 1856, the Maryland Agricultural College was chartered – the official origin of what we know today as the University of Maryland in College Park. The new institution was to be built upon 420 acres on Charles Calvert’s Riversdale plantation. In 1859, the Maryland Agricultural College opened its doors to students with the purpose of providing a quality, scientific agricultural education to Maryland’s farmers. The College physically consisted of a renovated Rossborough Inn—still standing today—and a few adjacent farm buildings. Maryland Agricultural College’s opening day and formal dedication took place on October 6, 1859. Joseph Henry, famous for his pioneering research in magnetic induction, and head of the Smithsonian Institution, was the keynote speaker. There were 34 students enrolled at the College in its first semester, with four faculty members assigned as instructors, and courses in mechanical and agricultural arts and military tactics.

The emphasis of the Maryland Agricultural College was on practical training in addition to classical studies, providing a college education that taught scientific farming methods. In July 1862, President Abraham Lincoln signed the Morrill Land Grant Act, providing federal support for state colleges to teach agriculture, mechanical arts and military tactics. In February 1864, the Maryland legislature voted to accept the Morrill grant. This helped support and shape the Maryland Agricultural College curriculum.



Mechanical Engineering Building, courtesy University Archives

By 1865, a course in electricity was offered in the College catalog, listed under the School of Natural Science. The School of Mathematics also offered courses in mechanics, pneumatics, acoustics, and optics. However, engineering courses and degrees were not yet offered.

To fully implement the Morrill Land Grant Act of 1862, and to gain further funding from the second Morrill Land Grant Act of 1890, President Richard W. Silvester requested new facilities and staffing for a Department of Mechanical Engineering in

June 1893. Formal engineering education at the Maryland Agricultural College began in 1894, and the first building dedicated to formal engineering instruction was constructed in 1895, now known as Taliaferro Hall. The first engineering degree – a B.S. in mechanical engineering – was conferred in 1898 to John H. Mitchell. A curriculum in civil engineering was established in 1901.



Prof. T.H. Taliaferro

Seven years later, in the fall of 1908, a new curriculum in electrical engineering was established and offered for the first time. The 1908-1909 college catalog listed the Departments of Civil Engineering, Electrical Engineering, and Physics under Professor T.H. Taliaferro (pronounced “tal-liv-er”) — Mechanical Engineering was listed as a separate department. Myron Creese, who would serve as EE department head and professor for the next 35 years, was listed as

an Instructor in Physics and Electrical Engineering in this first year of the EE curriculum. Prof. Creese would later serve as Vice President of the national Tau Beta Pi honors society in engineering before dying in 1945 at the age of 62.

The first EE laboratories were located in the basement and first floor of the east wing of the new engineering building (Taliaferro Hall). The rooms on the first floor were used for lectures and experimental demonstrations by the instructors, and the basement contained the dynamo room and the electrical engineering testing room. The following equipment was located in the testing laboratory: a Queen & Co. standard photometer, for measuring the distribution of light from incandescent lamps, with all the necessary instruments and adjustments, including a Lummer-Brodhun photometer screen and carriage, and a universal rotating socket for the test lamp; a number of direct current and alternating current voltmeters ranging from 0.0001 to 150 volts; ammeters ranging from 0.0004 to 50 amperes; a Siemens' electro-dynamometer of 60 amperes capacity; and an integrating watt-meter. In addition, there were D'Arsonval galvanometers both ballistic and light movement, furnished with lamp scales: standard resistance boxes and bridges, including a very accurate decade resistance box; double and single contact keys and commutating keys. The dynamo room contained the following: a 10 kilowatt General Electric rotary converter of the latest type with speed limit and end play devices, used as a synchronous motor and as an alternating current generator for testing purposes; a 5 horse-power General Electric commutating pole motor with a controller for varying speeds; and a Westinghouse 5 horse-power compound direct current motor.



Electro-dynamometer, courtesy DePauw University

Engineering expanded from one part-time instructor in 1892 to eight in 1912. In 1915, the Maryland Agricultural College was restructured into five divisions: agricultural education, agriculture, engineering, sociology, and applied sciences. Prof. Taliaferro was appointed dean of the Engineering Division and he remained in this position for the next six years.

Maryland Agricultural College became the Maryland State College of Agriculture in 1916 and later merged with the University of Maryland in Baltimore in 1920, when the state legislature established the university's main campus at College Park.

The Engineering Division, which offered degrees in electrical, civil, and mechanical engineering, was renamed the School of Engineering and Mechanic Arts in 1919, and finally the College of Engineering in 1921, when Dr. Arthur N. Johnson succeeded Taliaferro as dean.



D'Arsonval galvanometer, courtesy Denison University

Beginning in 1921, the curriculum for the first two years for all engineering students was identical. Later, in the 1930s, the engineering curricula were adapted to teach students skills in business organization, administration, and human relations. In 1926, the first engineering master's degree was awarded in electrical engineering to Howard Redford Aldridge, B.S. '25. The College of Engineering remained a predominantly undergraduate institution, with only a handful of graduate students, through the next two decades. The first female engineering student was admitted in 1928.

In 1936, S. Sidney Steinberg was appointed dean of the College of Engineering, where he would serve for the next 20 years. During Steinberg's first year as dean, the Departments of Electrical, Civil, and Mechanical Engineering were examined and accredited by the Engineers' Council for Professional Development (ECPD), a predecessor of today's Accreditation Board for Engineering and Technology (ABET).

In 1937, the Departments of Chemical Engineering and Fire Service Extension were established. The Department of Fire Service Extension, created with the purpose of training the state's volunteer firemen, would later become the Maryland Fire and Rescue Institute. In 1940, the College of Engineering was moved from what is now Taliaferro Hall to Shoemaker Hall, now known as H. J. Patterson Hall.

During World War II, a large number of students and faculty went off to war, and enrollment and faculty numbers throughout the University were greatly impacted. The College's total enrollment of 743 students in 1941 fell to less than 200 in 1944, then climbed to over 1,600 in 1946 after the war. The College of Engineering offered special training programs supporting the war effort in cooperation with the U.S. Office of Education.

In 1944, President Harry Clifton "Curley" Byrd persuaded aviation pioneer Glenn L. Martin to donate \$2,500,000 to the College of Engineering. The majority of the funds were used to construct new engineering and science buildings on the University of Maryland College Park campus to house the engineering departments, as well as the departments of chemistry, mathematics, physics, and geology. The remaining funds were dedicated to aeronautical research.



Glenn L. Martin, courtesy University Archives

Martin's gift led to the construction of four new buildings for the College of Engineering: the Engineering Classroom Building, the Engineering Laboratories Building, the Chemical Engineering Building, and the Glenn L. Martin Wind Tunnel. The construction of the Engineering Buildings was initiated as a competition. President Byrd sent letters to construction companies across the nation to ask construction firms to participate. Three companies accepted the challenge, and then two had to drop out, leaving Skidmore, Owings, and Merrill in charge of designing the new buildings. The final architectural design of the largest building resembled a slide rule from an aerial view.



Construction of Glenn L. Martin buildings, courtesy University Archives

In recognition of Martin's major gift, the College of Engineering was renamed the Glenn L. Martin College of Engineering and Aeronautical Sciences in 1949. This designation changed in 1955 when the engineering buildings and those of chemistry, mathematics, and physics, were renamed the Glenn L. Martin Institute of Technology. This realignment and emphasis on aeronautical research led to the establishment of the Department of Aeronautical Engineering in 1949. Martin's gift also led to a rapid growth in research activities in engineering.

In 1945, George Corcoran became the new EE department head, succeeding Myron Creese, an original faculty member dating back to the EE curriculum's inception in 1908. Corcoran served as EE department head until 1962, serving briefly as acting Dean in 1957. His primary emphasis was on undergraduate education, and he authored or co-authored a number of textbooks on electrical circuits and networks that were used in EE courses for many years.

Corcoran also started a doctoral program in EE under Dr. Henry Reed, a professor who joined the department in 1947. After Corcoran died, the George Corcoran Memorial Award for excellence in teaching by a young faculty member was established in the EE Department. Later, the award was extended to include graduate teaching assistants.

In 1953, the first Ph.D. degree in electrical engineering was awarded to Walter Beam, B.S. '47, M.S. '50. Dr. Beam was an early computer researcher with IBM, and later became vice president of UNISYS.

In 1960, funds from the U.S. Atomic Energy Commission led to the creation of a 10 kw nuclear reactor in the Chemical Engineering Building on campus. A graduate program in nuclear engineering was established in 1972, and the reactor was upgraded to a 250 kw level in 1974.

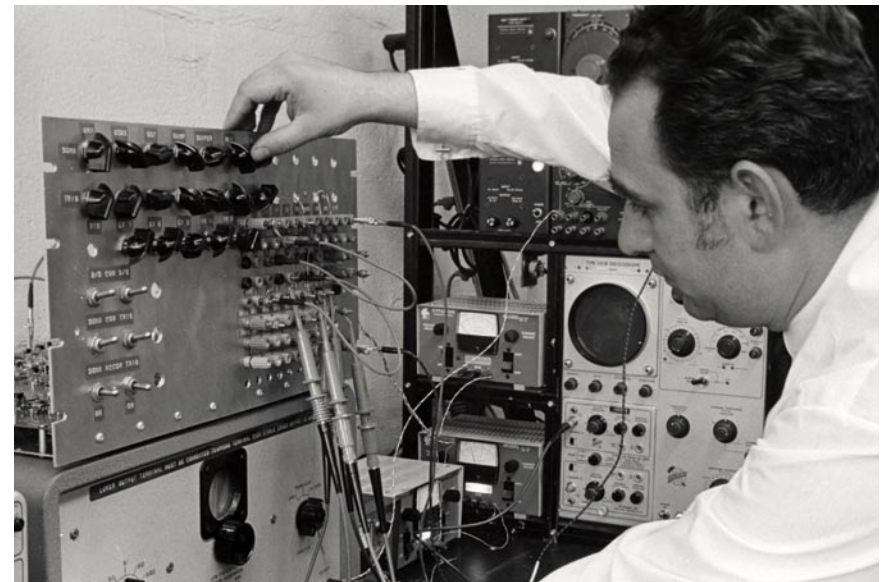
In 1962, Dr. Howard E. Tomkins succeeded George Corcoran as EE department head. Undergraduate engineering enrollment increased greatly during the early 1960s, rising from 1,600 in 1946 to over 2,500 in 1965, after a slight decline during the Korean War.

The late 1950s through the 1960s marked an exciting period for progress in science and technology. The development of the silicon transistor, the computer, the Apollo moon landing program, and nuclear engineering technology made for a quickly evolving engineering environment on campus.

Robert Beckmann became the new dean of engineering in 1965, succeeding Frederick Mavis (1956-1965) and Russell Allen, who briefly served as acting dean. In 1968, Dr. Nicholas DeClaris came from Cornell University to become the new chairman of electrical engineering, succeeding Howard Tomkins. He served as chair until 1975. A new Cooperative Engineering Education Program was instituted in 1970, allowing students to integrate 50 weeks of full time, career-related employment into their academic programs.

Around this period, engineering enrollment dropped, reflecting a national decline in student interest in engineering after the cancellation of the Apollo Program and other national technology programs. On campuses across the United States, student unrest over the Vietnam War was also having a negative impact on the higher education environment. EE faculty members vividly recall large student protests and clashes with police on the College Park campus, which often resulted in tear gas and arrests.

After Nicholas DeClaris stepped down as EE chairman in 1975, Don Gross served for one year as acting chair, before Robert Harger was ultimately appointed EE chairman in 1977. Harger was the last EE chairman of the 1970s, and Lee Davisson succeeded him in 1980.



Professor Nicholas DeClaris in EE Lab, courtesy University Archives

In 1977, Dr. George Dieter came to the University of Maryland from Carnegie-Mellon University to become the new dean of engineering, succeeding Robert Beckmann. During the late 1970s and early 1980s, the demand for engineers grew, corresponding to an increase in high-tech businesses as well as an increase in national defense spending. There was a dramatic increase in engineering enrollment at the University of Maryland. By 1982, there were nearly 4,000 students in the College of Engineering, more than double the number from 1974.

In 1981, a College Honors Program was established to attract and challenge the most talented students. A new engineering Advisory Council was also established in 1978, helping guide the College of Engineering and its vision for the future, as well as promoting increased strategic partnerships with industry. The first chairman of the Advisory Council was EE alumnus John W. Stuntz, B.S. '47, M.S. '50, who was Vice President of Westinghouse's Electronic Systems Division.



Glenn L. Martin Hall

In 1982, a major renovation of the Engineering Classroom Building, later to be renamed Glenn L. Martin Hall, was initiated. The entire inside of the building was gutted and rebuilt into a modern, environmentally-controlled facility. The renovation was completed in early 1985. EE alumna and astronaut Judith Resnik, Ph.D. '77, who would later die aboard the space shuttle Challenger, spoke at the gala alumni dinner held in the newly renovated building in May of 1985.

In 1983, a new Engineering Research Center (ERC) was established to help connect academic departments and industry. Dr. Herb Rabin joined the College of Engineering as associate dean and director of the ERC, and Professor of Electrical Engineering, after a distinguished career in research at the Naval Research Laboratory. A new Technology Advancement Program (TAP) was established in 1985, with the purpose of helping with technology commercialization. The Technology Initiatives Program (TIP) was also established to bolster research funding within the Glenn L. Martin Institute of Technology.

Finally, the last major component of the ERC effort was the new Maryland Industrial Partnerships (MIPS) program, established in 1987. The MIPS program was intended to connect faculty researchers with companies in Maryland in need of applied research and technical expertise. The state funded the projects, along with matching funds from the MIPS companies.

These ERC components would ultimately be classified under what is now known as the Maryland Technology Enterprise Institute (MTECH).

In 1980, the Instructional Television System (ITV) was established as part of the College of Engineering, a new system to deliver state-of-the-art short courses to off-campus laboratories and corporate sites in the DC-Baltimore area.

Graduate student enrollment sky-rocketed within the Clark School between 1977-1987, more than doubling from approximately 500 in '77 to over 1,000 in '87. The increase in graduate students corresponded with the growth of new research activities.

A number of new research centers, many of them related to EE, began to develop at Maryland at this time. In 1985, a new Systems Research Center (SRC) was established with a \$16 million grant from the National Science Foundation. Led by Dr. John Baras, an EE professor, the SRC focused on systems aspects of control, communications, manufacturing, and information processing, involving faculty from EE, mechanical, aerospace, civil, and chemical engineering, as well as computer science and business administration. The center was later renamed the Institute for Systems Research.

In 1986, William Destler succeeded Lee Davisson as chairman of the EE Department. Under his leadership, the department blossomed into one of the top electrical engineering departments in the nation. Destler began at Maryland in 1972 as a postdoctoral research associate in the Electron Ring Accelerator Group.

Dr. Destler played an instrumental role in securing new space for faculty offices, undergraduate teaching labs, and research labs for the Department of Electrical Engineering in a new modular research building, originally constructed in 1987 and later expanded with an additional wing in 1992. The building was named after civil engineering alumnus A.V. Williams, B.S. '17, a prominent Baltimore builder and manufacturer. The building became a major center for concentrated computer-related activities, with the



William Destler (center) outside the Electron Ring Accelerator Group Laboratory with Martin Reiser (left) and Bob Meger (right), courtesy University Archives

Computer Science Department, the Institute for Systems Research, the University of Maryland Institute for Advanced Computer Studies, and the Center for Automation Research being located in the A.V. Williams facility, along with the EE Department. In 1991, Prof. Baras was involved in the establishment of another research center, along with fellow EE Professor Anthony Ephremides. The two men co-directed the creation of the Center for the Commercial Development of Space in Satellite and Hybrid Communication Networks, which was established with funding from NASA. The center was founded to study advance communications involving satellites in space, with an emphasis on collaboration with industry.



Nariman Farvardin, photo by John Consoli

In 1993, a new, interdisciplinary M.S. in Telecommunications program was established, blending courses from electrical engineering, computer science, business, and public affairs. William Destler played a lead role in helping to create the new program, which was to be administered within the Electrical Engineering Department.

In 1994, a major Centennial Celebration was planned to mark the 100th anniversary of the College of Engineering. In conjunction with the Engineering Centennial, alumnus and benefactor A. James Clark, chairman and president of the Clark Construction Group, pledged \$15 million to create the A. James Clark Centennial Endowment Fund in support of undergraduate engineering education. In recognition of this gift, the College of Engineering was renamed the A. James Clark School of Engineering.

In June of 1994, Dr. George Dieter retired after 17 years as dean of engineering, and was succeeded by Dr. Destler, EE chairman. Destler served as dean of the Clark School for the next eight years. When Destler was later promoted to higher university administration, eventually as Provost and Senior Vice President, Nariman Farvardin was selected to succeed Destler as chairman of the EE Department.

Under Nariman Farvardin, the Industrial Affiliates program was created within the Department of Electrical Engineering. The purpose of the program was to help develop new partnerships between industry and the department. Farvardin served as chairman of the department until 2000, when he succeeded William Destler as Dean of the Clark School of Engineering. Farvardin later created a new Corporate Partners program within the Clark School, modeled after the Industrial Affiliates program he had initiated as chairman in the EE Department.

In the Fall of 1997, a new B.S. degree program in Computer Engineering was launched at the University of Maryland, drawing upon resources and expert faculty from both the departments of Electrical Engineering and Computer Science. The Computer

Engineering program, the first of its kind in the state of Maryland, was developed in conjunction with industry leaders to address the demand for excellence in this rapidly developing field. The creation of the new program led to the EE Department being renamed the Department of Electrical and Computer Engineering (ECE).

After Dr. Farvardin took over as dean of engineering, Prof. Steve Marcus was chosen to succeed him as ECE chairman. Marcus, who had originally come to Maryland after serving on the faculty of University of Texas at Austin, had previously served as the Director of the Institute for Systems Research at Maryland. Marcus served as chairman from 2000 to 2005. Under his leadership, the department made strides in diversifying its faculty, particularly with regard to gender. Dr. Marcus hired four new female faculty members during his time as ECE chairman.

In July 2005, a new ECE chairman, Prof. Patrick O'Shea, was selected to succeed Marcus. An alumnus of the University of Maryland, O'Shea served for four years as Director of the Institute for Research in Electronics and Applied Physics (IREAP) at Maryland. During his time as a graduate student at Maryland, he had been co-advised by William Destler and Martin Reiser. After graduating with an M.S. ('82) and Ph.D. ('86), O'Shea later returned to Maryland as a faculty member in the ECE Department and IREAP.



Jeong H. Kim Engineering Building, dedicated September 2005

In September 2005, a new engineering facility was formally opened and dedicated. The Jeong H. Kim Engineering Building, the first on the College Park campus named after an Asian American, reflected a modern, open, attractive architectural design that was intended to make the building a research and education center whose state-of-the-art labs could be shared across departments to encourage cross-disciplinary work. Many structural components, such as the building's elevator shaft, were intentionally left open to help students learn about civil and environmental engineering, control systems and construction, allowing the building itself to serve as a learning laboratory. The building's namesake, Dr. Jeong H. Kim, President of Bell Labs, was present at the dedication, along with Maryland Governor Robert Ehrlich and President C.D. Mote.

The building was located directly across the street from the A.V. Williams Building, offering expanded office space for faculty, as well as additional laboratory space on the second and third floors of the new building. Many ECE faculty members moved across the street to offices in the new building.



ECE GlobeCom Reception, November 2007

In April 2006, the Clark School was ranked among the top ten public engineering programs in the nation by the *U.S. News and World Report's* Best Graduate Schools publication, which ranks the Clark School 15th in the nation and 9th among all public universities. Maryland's Electrical Engineering program is ranked 13th in the nation, 7th among public universities, and 1st among all public universities in the Northeast and Mid-Atlantic, while the Computer Engineering program is ranked 16th in the nation, 9th among public universities, and 1st among all public universities in the Northeast and Mid-Atlantic. The rankings reflect a steady climb in the *U.S. News* rankings for both the Clark School and ECE programs, which began under the leadership of George Dieter and William Destler, and continued under Nariman Farvardin.

In the spring of 2007, William Destler announced that he would leave his position as provost and senior vice president at the University of Maryland to become president at Rochester Institute of Technology (RIT). By the summer, Clark School Dean Nariman Farvardin was appointed provost at Maryland. Herb Rabin was appointed as interim dean.

In November 2007, the ECE Department held a large alumni reception in the Jeong H. Kim Engineering Building in conjunction with the IEEE GlobeCom conference to kick off celebrations for its Centennial year.



IV. Centennial Recollections

by Dr. Steven Tretter (B.S. '62), Alumnus and Faculty Emeritus

Centennial Recollections by Steven Tretter (B.S. '62), Alumnus and Professor Emeritus

Excerpts from: "A Very Biased History of the Electrical Engineering Department at the University of Maryland, College Park"

Prof. Steven Tretter entered the University of Maryland as a freshman Electrical Engineering student in 1958 — exactly 50 years after the EE program was established on campus — and retired as a University of Maryland EE professor in 2008, on the 100th anniversary of the EE program at Maryland. The following are recollections of his experiences as a student and faculty member in the EE Department.

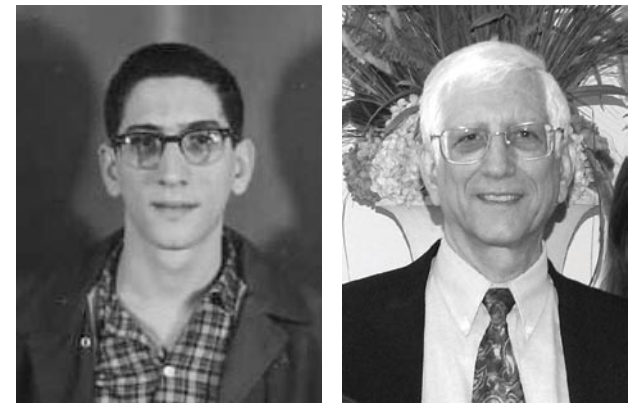
1: Thoughts on How the University has Changed Over the Years

1.1: Earliest Memory of the University

I was born in 1940 and lived in Greenbelt from 1940 to 1950 when we moved to Silver Spring. My earliest memories of the University are taking "long" exciting trips out into the country to get ice cream at the University Dairy. At that time and up until the Dairy was renovated around 2000, the inside walls were real knotty pine vertical boards instead of the current bland painted wallboard.

1.2: Associations During Junior and Senior High School

Each year while I was in junior and senior high school, the University Music Department held a Maryland public school concert band festival. The bands played on the floor of the Armory and were provided with constructive criticism by the judges. No rankings or winners were declared. I played the clarinet and was there in the 9th grade with the Eastern Junior High School band and during the 10th, 11th, and 12th grades with the Montgomery Blair High School band.



Above: Prof. Steve Tretter as a senior EE student at Maryland in 1962 (left), and at his retirement party 46 years later in 2008 (right)

The state high school basketball championships were held at Cole Fieldhouse. My high school, Montgomery Blair, played in a couple of them. Cole Fieldhouse was almost new at the time and very impressive to a high school student. Of course, stopping at Ledo's for pizza was part of the experience.

One University home football game was made Marching Band Day each year. Many high school bands from around the state came and filled the field during half-time. We played the University's Alma Mater.

1.3: The University when I was an Undergraduate in Electrical Engineering from September 1958 to June 1962

Given my previous experiences at the University, it's not surprising I chose to attend UMD. I enrolled in Electrical Engineering, starting as a Freshman in September 1958. At that time, students with a C average from any Maryland high school were automatically admitted. Now students need high A averages to gain admission.

At that time there was no University System of Maryland. College Park was a single autonomous campus called the University of Maryland. There were about 15,000 students. Wilson Elkins was the President.

Until about ten years ago, the department was called the Electrical Engineering Department with the abbreviation EE. This was the most common nomenclature at universities around the country. The name was later changed to the Department of Electrical and Computer Engineering with the abbreviation ECE, which has become common at other universities.

The EE Department's primary emphasis at the time was on undergraduate education. Only a few of the faculty members had doctorates – Dr. Gordon Wagner, Dr. Henry Reed, and Dr. Giovanni Rutelli. The rest had M.S. degrees or were instructors who were working on Ph.D.'s. Many of the required EE undergraduate courses were taught by the Instructors.

There was very little funded graduate research and very few full time Master of Science students.. However, there was a reasonably large number of students working on the M.S. degree part-time. These students mostly came from local government labs like the Naval Research Lab and the Naval Ordinance Lab which was the name of the Navy lab in White Oak then. All M.S. students were required to do a thesis. The Graduate School had no non-thesis option. There were, perhaps, ten full-time Instructors working towards the Ph.D.

Many EE courses were four credits. Each had a lab associated with it. Our grades were based 75% on our regular course performance and 25% on our lab performance.

Many EE courses used textbooks written by department faculty members.

Graduating Seniors did not have to take final exams then, and this continued into the 1970's. I believe the reason was that grade compilation was minimally automated and took a long time. Grades had to be turned in for graduating Seniors a week before the end of the semester. The Registrar needed to know whether a student was graduating in order to have diplomas made by the graduation ceremony.

In 1960, Glen L. Martin Hall (the Engineering Classroom Building) was almost new – only about five years old. It had a bell system like in the high schools. The bells rang on the hour for the start of class and 10 of the hour for the end of class. There were also IBM clocks hanging from the ceiling throughout the building. Essentially all EE classes were held in Martin Hall.

1.4: The University Since I Became a Faculty Member in 1966

After I earned my Ph.D. in EE at Princeton University, and spent about nine months at Hughes Aircraft Co. in Culver City, California, I returned to the University of Maryland in September 1966 as an Assistant Professor of Electrical Engineering.

There were around 14 faculty members at that time. There was one other in communications, Bob Ginnings. Henry Price was in controls. There were several faculty members in circuits, including Dave Simons (deceased), Ray Basham (deceased), and Gordon Wagner (deceased), and Henry Price.

There were two full-time faculty members in Computers, Jim Pugsley and Alan Markowitz. I believe Yaohan Chu was a part-time lecturer then. Like today, there was a large group in electrophysics, including Martin Reiser, Hogil Kim (deceased), and Urs Hochuli (deceased).

The Department had only one central phone number. Faculty phones were extensions. One secretary answered the central number and buzzed us when there was a call or took a message if we did not answer.

Parking was free for faculty, staff, and students.

Xerox machines and laser printers did not exist. The Department had a 3M Thermofax machine that made ugly copies on infrared sensitive onion skin paper. We had to adjust the paper feed speed to get a copy that was not over or under exposed. We placed the original on top of the onion skin paper and fed them into the front of the machine.

Multiple copies of exams were made with a Ditto machine. A Ditto master consisted of a white sheet of relatively thick paper with a sheet of something like carbon paper attached to the back with the ink side facing the back of the white sheet. We wrote or typed on the front of the white sheet and the ink image was transferred to the back of the white sheet. We then ripped off the carbon sheet and attached the white sheet with the ink side out to a drum. To make copies, the machine turned the drum and the master was wetted with a liquid that smelled like ether. The wet master pressed against the copy paper as the drum turned and ink was transferred to the purple copy. About 100 copies could be made before the ink on the master ran out.

Many years later when the Department had a Xerox machine, we still used the Ditto machine to make copies of class hand-outs and exams because the copies were much less expensive. It was not until about 10 years ago that the Thermofax and Ditto machines disappeared because Xerox and laser printer copies had become cost competitive and had far superior quality.

There were no electronic document preparation systems in the late 60's. All documents including technical papers were typed using IBM Selectric typewriters with a character ball. Conference papers were typed on large mats which the publishers photographically reduced for the printed conference proceedings. Textbooks were submitted to the publishers as typed manuscripts and the publishers then set them in lead type for the presses. This required us to proofread galley proofs and page proofs, and make an index manually. The Department had a pool of four or five technical typists. Patsy Keehn, a staff member who is still with the Department, was one of them.

Later, we had a CPT document writer. It electronically stored the text, had a double wide carriage, but had no screen, and mechanically printed on the paper like a typewriter. Much later, TeX and LaTeX and laser printers appeared, allowing excellent electronic document preparation. Now with the low cost of PC's, laser printers, and powerful electronic document preparation software, essentially all documents are created electronically. These include conference papers, journal articles, and entire books. My last four books were prepared with LaTeX and sent to the publishers as copy ready Post Script or PDF files. The faculty have almost all become their own secretaries.

When I arrived as a faculty member in September 1966, the Campus computer facility was a UNIVAC 1108 mainframe.

We used punched cards to enter programs. There was a room in the basement of Martin Hall with several card punch machines and a card reader to remotely send our programs to the 1108. It also had a high-speed line printer to print our program output.

There was about a 12-hour turn-around time. We would submit the cards for a FORTRAN program at the counter in the

basement of Martin Hall and pick up the output the next day to find out we had left out a comma or parenthesis. It took forever to debug programs!

CPU time was allocated in limited amounts and monitored. People using the computer for research supported by contracts and grants had to pay real dollars. We had to fill out forms and “beg” for additional time when we used up our allotment. The system came to a halt once a week (or was it once a day?), late at night when the account program was run.

Soon remote 110 baud mechanical teletypes were added. We had to use a line editor since there was no screen, just a roll of paper. We would edit a line of text, press the RETURN key, and the new line would be reprinted.

Later, EE got a DEC VAX which took up a large room in the basement of Martin Hall. Privileged faculty members got remote terminals. The VAX was replaced by the SUN workstation network and the Glue system.

Now PC's and WiFi have taken over. The SUN workstations are disappearing and Glue usage is rapidly diminishing. There are no limits to computer usage time. Essentially the entire campus has access to the wireless WiFi system. Broadband remote access is readily available and the University shut down its remote access wireline modem bank because of very low usage.

2: Bill Hahn

In 1960, the first EE course students took was EE 1 Basic Electrical Engineering. This course was taken in the Fall semester of a student's Junior year. EE courses were given once a year, so students who failed an EE course were set back an entire year. The textbook was Introductory Electrical Engineering, J. Wiley, 1957 by George F. Corcoran and Henry R. Reed. George Corcoran was the Department Head and Dr. Henry Reed was another EE professor and was in charge of the graduate program. In fact, George Corcoran was the Department Head for 25 years.

William R. Hahn was my instructor for EE 1 in the Fall 1960 semester. He was a full-time Instructor working on his Ph.D. degree at the time. A couple of years later he became a full-time employee of the U.S. Naval Surface Weapons Center in White Oak, Maryland and continued to work on his Ph.D. part-time. Bill was an avid handball player and had bent fingers caused by hitting the walls too often. He smoked a Sherlock Holmes kind of pipe and acted real cool.

2.1: Lab Instructor is No Longer Cool

Bill was also my Instructor for the lab portion of EE 100 Alternating Current Circuits. Many EE courses at that time were four credits with three credits for the regular in-class instructional part and one credit for the lab portion. Grades were based proportionately on our performance in both parts. The text for the in-class part was Alternating Current Circuits, J. Wiley, 1943 by Russell M. Kerchner and George F. Corcoran. Russell Kerchner was not a College Park faculty member. In the lab for EE 100, Bill Hahn carefully checked our circuits to make sure they were correct before we turned on the power.

One experiment involved an autotransformer that was about ten inches tall with a six-inch square base. After checking our circuit, Bill went to the power panel on the wall and flipped the switch on. Within seconds, clouds of white smoke started pouring out of the autotransformer. Bill quickly turned off the power and was very embarrassed to discover he had plugged the power cable into the DC rather than the AC outlet! We no longer thought he was so cool.

2.2: My First Ph.D. Graduate

After I completed my Ph.D. at Princeton University, spent nine months working at Hughes Aircraft Company in Culver City, California, and returned in September 1966 to teach as an Assistant Professor in the EE Department at the University of Maryland, Bill Hahn was still working on his Ph.D. His advisor was the Assistant Professor, Bob Ginnings, who had recently received his Ph.D. from the University of Maryland EE Department and had also been an Instructor while working on his degree. Bob left to work at Hekemian Labs in Rockville, Md. a couple of years later and I became Bill Hahn's Ph.D. advisor. Bill Hahn earned his Ph.D. a couple of years later. It is kind of ironic that the instructor for my first EE course became my first advisee to get his Ph.D.

3: George F. Corcoran

George F. Corcoran was the Electrical Engineering Department Head from the early 1940's to 1964. Notice the word "Head" in his title. Sometime in the late 1960's or early 1970's, the title of the person who was in charge of a department was changed from Head to Chairman. The Head had significantly more authority than a Chairman.

George Corcoran was very well-liked by faculty, staff, and students. Not too long after retiring, he died from a progressive nervous system disease. After he died, the Corcoran Award for excellence in teaching by a young faculty member was established in the EE Department. Later, it was extended to include graduate teaching assistants.

Corcoran's primary emphasis was on undergraduate education and he authored or co-authored a number of textbooks that were used for our EE courses. These include:

1. George F. Corcoran and Henry R. Reed, Introductory Electrical Engineering, J. Wiley, 1957. EE 1 Basic Electrical Engineering. (for EE 1 Basic Electrical Engineering)
2. Russell M. Kerchner and George F. Corcoran, Alternating Current Circuits, J. Wiley, 1943. (for EE 100 Alternating Current Circuits)
3. George F. Corcoran and Henry W. Price, Electronics, J. Wiley, 1954. (for EE 101 Engineering Electronics)
4. Henry R. Reed, T.C. Gordon Wagner, and George F. Corcoran, Electrical Communications Experiments, J. Wiley, 1958. (Lab text for EE 105 Radio Engineering)

Henry Reed and Gordon Wagner were also Professors in our EE Department.

Corcoran encouraged faculty to have a strong interest in undergraduate activities and many faculty members often attended events like Eta Kappa Nu initiation banquets and IEEE picnics.

There were around 200 EE undergraduates in 1960. A significant number of them had returned from the Korean War and were supported by the GI Bill. It seems Professor Corcoran knew every student by name and how they were doing. His door was always open for us. However, when you went to see him, he acted very tough and menacing—but you knew it was an act and he had a heart of gold. When I would walk into his office, he would bark something like, “What the hell do you want, Treter?”

3.1: Student Does Poorly in Probability

George Corcoran was my professor for EE 103 Engineering Analysis. This course was really a two-credit introduction to probability. It was the predecessor to our current ENEE 324 Engineering Probability course. Our department was one of the early ones in the country to recognize the importance of Probability in the Electrical Engineering curriculum and was largely the result of George Corcoran's vision.

One day in class, Professor Corcoran told a story about a student in a previous EE 103 who seemed to be very serious and hard working, but did very poorly on the first exam. Corcoran asked him what the problem was and found out that this student had previously been a divinity student and knew nothing about poker hands. Several questions on the exam asked the probability of getting certain hands in cards games, and the student was baffled by the problems.

4: Dr. Henry Reed

Dr. Henry Reed was a long-time Professor in the EE Department and retired around 1966. He was in charge of the EE graduate program for many years. Dr. Reed also ran a mini EE graduate department at the Navy installations in southern Maryland. He was one of the few faculty members with funded graduate research.

In addition to the books listed above that Dr. Reed co-authored with Corcoran and Wagner, he co-authored the book Communications Circuits, J. Wiley, 1942, with Lawrence A. Ware. This book was used for the Spring semester Junior course EE 104 Communications Circuits.

4.1: The Knock on the Door

Dr. Henry Reed was my professor for the first semester required Junior year course, EE 60 Electricity and Magnetism. At that time there was only one required E&M course. He locked the door as soon as the bell rang and would not let late students in. One day, the knocking on the door would not stop and, exasperated, Dr. Reed finally opened it. It turned out it was our Department Head, George Corcoran, with an emergency message for me!

4.2: Dr. Reed's Exam Grading Policy

On exams, we could have a long problem solution all correct except for a small numerical error at the end, and Dr. Reed would give zero credit for the problem. He said, "You're engineers. What would happen if you designed a bridge, made a dangerous numerical error, and the bridge collapsed?" We had a lot of trouble accepting this argument since we were not going to design bridges!

5: Dr. Gordon Wagner

Thomas Charles Gordon Wagner received a B.S. degree from Harvard in 1937, then he came to the University of Maryland and earned an M.S. degree in 1940 and Ph.D. degree in 1943, both from the Math Department. Dr. Wagner became an EE faculty member about that time at the urging of George Corcoran. Even though Gordon's graduate degrees were in Math, he had a strong interest in real-world applications and was an expert circuit designer and consultant to industry. In addition to the lab manual co-authored with Reed and Corcoran, Gordon wrote the book *Analytical Transients*, Wiley, 1959, which was used for many years for a graduate circuits course he taught.

Before the Glen L. Martin complex was built, the EE Department was in a building along the Mall near McKeldin Library. After the EE Department moved to Martin Hall, most of Gordon Wagner's university things remained in a box in the back corner of his office, which he never unpacked.

Gordon and his wife Rita were avid auto rallyists. As far as I can remember, Gordon always drove Porsches. In the 1960's, before microprocessors and VLSI, he designed and built an electronic rally computer for his car that helped him rank high in the rally world. Gordon retired in 1976 and died on December 13, 2005.

6: David E. Simons

David E. Simons was an EE faculty member for 35 years. Dave served during World War II in the South Pacific, New Guinea, and the Philippines. After returning from the war, he earned his B.S. and M.S. degrees in EE from the University of Maryland under the GI Bill and became an Assistant Professor in our EE Department around 1950. Dave was an expert circuit designer. For quite a few years, Dave did all the course scheduling for the Department acting as a one-man "Academic Affairs Committee."

In the early 1980's, the University of Maryland, Baltimore County, began offering graduate EE courses and started setting up an undergraduate EE program. The program at UMBC was considered to be part of the College Park program and under the direction of EE at College Park. Dave Simons was assigned to develop the undergraduate EE program at UMBC and went there several times a week. He established courses through the Junior year. The EE program was later terminated at UMBC. Dave retired as an Associate Professor about 14 years ago and died on September 13, 1998.

Dave Simons was extremely well-liked by his students. After taking a few of Dave's classes, students said they were "Simonized." He was a very down-to-earth person with a wonderful sense of humor. After his death, a scholarship was established in his name. A couple of stories I remember about him follow.

6.1: Limited Questions

I was an undergraduate student in three or four of Dave Simons' classes. There was a student in one of the classes who always asked many silly questions each period. One day he disrupted the class with an unusually large number of questions. Dave Simons stopped lecturing, looked at the student, and said, "From now on you're limited to one question each class period." The student immediately shot up his hand and said something like, "You really mean only one question?" Dave's answer was, "That's one."

6.2: Nailing the Table to the Floor

In a moderately large lecture room on the second floor of Martin Hall, there was a desk about six feet long and three feet wide for the professor's notes at the front of the room. The cleaning staff always pushed the desk against the blackboard at night, so the first professor to use the room had to move the desk away from the blackboard.

A spring semester Senior class I had with Dave Simons was the first to use the room for the day. On the last day of class when we were all about to graduate, we decided to play a trick on Dave Simons and nailed the desk to the floor against the blackboard wall. Well, Simons came into the room, hopped up on the desk facing us, and told us he had really enjoyed having us as students, wished us the best of luck in our careers, and asked us to come back and visit him.

Then he just left the room, never having tried to move the desk.

7: Henry Price

Henry Price was an EE faculty member for many years and retired around 1969. He specialized in electronics and control systems. He was my professor for the required Junior Spring semester course EE 101 Engineering Electronics. We used the electronics text by Corcoran and Price. After leaving the University, Henry worked at NASA Goddard Space Flight Center as the head of a rocket guidance and control systems department as I recall. He had been a consultant there before leaving EE. As was common at the time, Henry's highest degree was the M.S., but he had significant industrial experience.

When I first returned to College Park as an Assistant Professor in September 1966, Howard Tomkins was the Department Head. He had come from NIH with a computer background and left in 1967. For a year and a half after Howard Tomkins left and before Nicholas DeClaris arrived, Henry Price was the Acting Department Head.

8: The Vietnam War Era

Many interesting incidents occurred during the Vietnam war era. When I first started teaching at UMD in 1966, faculty dress was relatively formal. Most wore jackets and dress shirts. Students dressed less formally but also conservatively. As the war progressed and protests mounted, student and faculty dress became much more casual until today it is quite casual. It is now sometimes hard to distinguish between young faculty members and students.

8.1: Tear Gas from the Armory

The Air Force Reserve Officer Training Corps (ROTC) was housed in the Armory until relatively recently. As the war dragged on, there were student protests on US 1 and at the Armory. The National Guard and State Police came onto the campus several times to open up US 1 and control the demonstrations. My office was in Martin Hall on the third floor, I think, facing the Armory. One day I noticed a large gathering at the Armory and then saw some puffs of smoke that were drifting towards Martin Hall. I figured it must be tear gas, so I left campus the back way out Azalea Lane. People who had stayed in the building later confirmed that it was tear gas.

8.2: Bomb Scares

During the Vietnam War era there were frequent calls to the University claiming that bombs had been planted in various buildings. The bomb scares seemed to be more frequent around exam times. Whenever there was a bomb scare, the building had to be evacuated and searched.

During one reorganization of the location of faculty offices, I ended up on the third floor of Martin Hall in an office that had been used by Russell Glock. Russ Glock was an EE Instructor who had just earned his Ph.D. and gone to work full time at the Naval Surface Weapons Center in White Oak. He left behind a red ship's gyroscope in a metal box that was about 3 x 3 x 8 inches. The box had warnings written on it like "safety plunger" and "danger." I used it as a doorstop. During the bomb scare evacuations, I made sure to put it in a prominent spot in the middle of the floor. One time the safety officers got to my office before I left. It took

a while for me to convince them the gyroscope was not a bomb and posed absolutely no danger. It was lost when we moved from Martin Hall to the A.V. Williams Building.

9: The Student Doing Poorly in ENEE 425

I was teaching ENEE 425 Digital Signal Processing in Martin Hall. One student who seemed interested and bright did very poorly on the first exam. I asked him why this happened and he said that he had been an undergraduate at Cooper Union in New York and all his tests had been take-home exams. In addition, he said the textbook was bad. Guess who wrote the book? It was me! Had this student ever looked at the textbook and noticed who the author was?

10: Missed Makeup Exam

While EE was still in Martin Hall, one student missed an ENEE 322 exam. He claimed his car broke down, so I was soft-hearted and scheduled a makeup exam for him. He also missed the makeup exam.

The next day after the missed makeup exam, I came out of my office and looked down the hall towards the window on the US 1 side of the building. The sun was shining brightly through the window so I initially just saw a silhouette of a person coming down the hall towards me. As he came closer I saw that his head was all bandaged up, and then that there were stitches across his forehead that looked like a zipper, and when he was still closer, that his face was severely swollen. I finally recognized him as the student who had missed the exams. He claimed that his car broke down again on the way to the makeup exam and that he knew I would not believe him. He said he lifted the hood to look inside the engine compartment and try to see what the trouble was and that the hood then fell on him. He maintained that it caused a big cut on his forehead, that he went to an emergency room, and his face swelled up because of a severe allergic reaction to the anesthetic. I thought that it was rather unlikely that someone would injure himself so badly just to take a makeup exam, so I scheduled another one, which he took—but unfortunately did not pass. At least he did not use the common excuse that he had to go to his grandmother's funeral.

11: Mixed Messages

One semester I was teaching ENEE 722 Error Correcting Codes in one of the ITV (Instructional Television) classrooms behind the Engineering Lab Building. In the middle of the class, one of the remote students called in and asked a question that was somewhat related to the class, but not strongly relevant. I patiently tried to answer his question. A little later the same student

called in and asked a question that was even more removed from the class lecture. Then I realized what was happening. Prakash Narayan was teaching ENEE 721 Information Theory, to which Error Correcting Codes is closely related, in the adjoining ITV classroom, and the ITV staff had exchanged the telephone lines for our classes.

12: The Ping Pong Table

David LeVine joined the EE faculty as an Assistant Professor in 1968 after receiving his Ph.D. degree from the University of Michigan. His area of expertise was electromagnetics. After four or five years, he left to become a full time employee at the NASA Goddard Space Flight Center in Greenbelt and is still working there. Our offices were close by on the third floor of Martin Hall and we became good friends. We discovered that we both liked to play ping pong, and noticed that there was an old, unused ping pong table in a corner on the second floor of the Engineering Lab Building. We moved the table to a large classroom on the third floor of Martin Hall, across from our offices. On Friday afternoons after classes were over, we would move the chairs out of the way and move the ping pong table to the middle of the room and play for an hour. Then we would move the table back into a corner of the room and replace the chairs. The table was still in the classroom long after Dave went to NASA and probably would still be there today if Martin Hall had not been renovated. No one else knew why it was there or took responsibility for it.

13: Can a Post Doc Teach a Class?

Bill Destler came to the University as a Post Doc in the Particle Accelerator Group working with Martin Reiser. Bill asked to teach an undergraduate electromagnetics class after he was here for a semester or two. At that time, Bill had long hair and looked very young. Bill's request led to a long faculty meeting, where the question of whether a Post Doc should be allowed to teach a class was hotly debated in our typical academic fashion. The final decision was to give Bill a chance. Students in that class—and every one afterwards—rated Bill extremely highly as a teacher.

Bill Destler quickly progressed through the academic ranks to Full Professor, became the ECE Department Chairman, then Dean of Engineering, moved up the administration to Provost, and recently left to become the President of the Rochester Institute of Technology. Would this all have happened if we did not allow a Post Doc to teach a class?



V. Centennial Recollections

by Dr. Walter Beam (B.S. '47, M.S. '50, Ph.D. '53), Alumnus

I entered Maryland in fall 1943 and took up a busy schedule of extracurricular activity. As a result of World War II, the Electrical Engineering (EE) Junior Class in 1946 consisted of only one 17-year-old student — me. I assisted in the development and construction of new electronics lab apparatus.

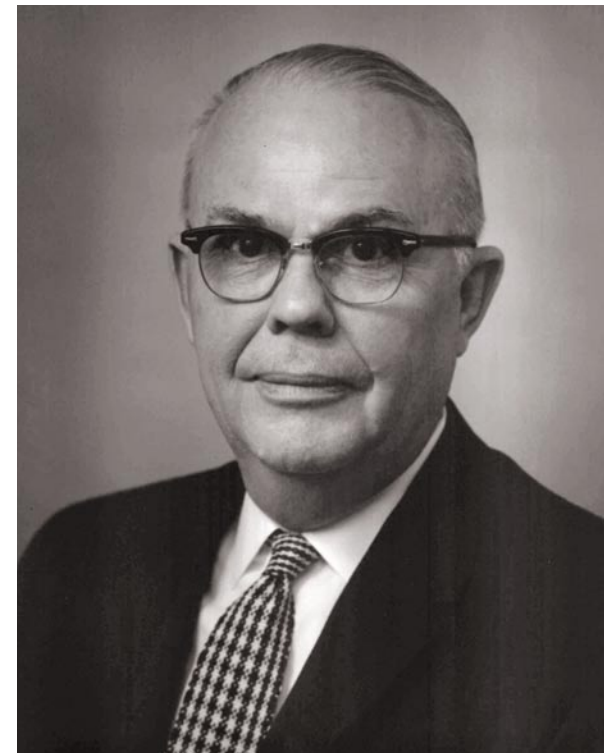
I worked as a lab technician during junior and senior years, and benefitted greatly during much of my working career from the help and encouragement of George Corcoran, Joe Weber, and Gordon Wagner, my best-recalled professors at the University of Maryland.

Prof. George Corcoran:

Previously at Iowa State University, Prof. Corcoran came to College Park to head the EE department in 1942. He built the graduate faculty and programs and initiated many new course offerings. His textbooks on basic EE were widely used throughout the U.S. He retired in 1964, and died in 1965. During his time at the University of Maryland, he hired outstanding faculty members, among them: Joseph Weber, first to publish a paper on the concept and principle of masers; Gordon Wagner, outstanding mathematician and a practical electronic circuit designer; W.R. (“Bill”) Ahrendt, co-author of a seminal text on Control Theory and founder of Ahrendt Instrument Company in College Park.

Prof. Joe Weber:

From 1947 to 1962, Joe Weber was a member of the EE faculty. His doctoral work led him to conceive the maser (microwave equivalent of the laser); he wrote the first paper explaining how, and why, it would work. This work, (published in Vol. I, No 1. of IEEE Transactions on Electron Devices) was ignored by the Bell Labs scientists who took



George Corcoran, courtesy University Archives

credit (and a Nobel prize) for this important invention. Much disappointed at being ignored, Weber turned to a cosmic-dimension issue, that of gravitational waves.

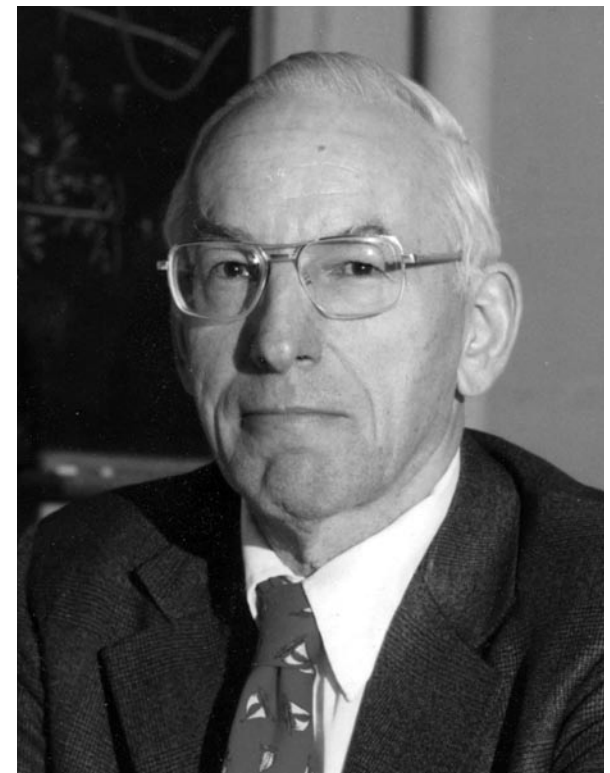
Acknowledged as a top-notch instrumentation engineer, Weber built large instrumented aluminum cylinders intended to resonate when impacted by gravitational waves. His claims to have detected the waves about the time a suspernova explosion was observed optically could not be duplicated. Today most gravity-wave scientists believe the signals — if they exist — would be too small for Weber to have observed them. Although his work in that field is not generally perceived as successful, the field of research remains active, with large detection machines being put into operation. Weber advised a number of EE doctoral students during his years in the EE department, with microwave electronics his major field at the time. Among them were myself and Dr. Urs Hochuli.

Prof. T. C. G. (Gordon) Wagner:

Gordon was a brilliant theoretician. He was a mathematician by training and an electronics engineer as a hobbyist and consultant. At one time, he taught a graduate EE course in tensor theory. Just like other mathematicians, he KNEW there were good uses for tensor theory in electromagnetics. So far as I know, tensor theory is still MOSTLY a math science waiting to pick up EE applications. (However, tensors are handy when attempting to understand piezoelectricity.)

Prof. William R. Ahrendt:

Prof. Ahrendt was an adjunct faculty member. He taught control theory before 1947, and with Taplin, was author of a seminal textbook on the subject. His business in eastern College Park was successful. He sold it for enough to retire, and became a South American missionary. He owned and flew a twin Beech aircraft. One day, with his whole family aboard, he failed to clear a ridge in the Andes, and all were lost.



Professor T.C. Gordon Wagner

Prof. Lawrence Hodgins:

In the 1940s, sophomore EE class was taught by Prof. Lawrence Hodgins, a beloved faculty member for decades. Hodgins was a lovable old guy — not up to the new electronic stuff, but he knew the power equipment that was then a major part of early EE labs. By the 1940s, telephone engineering had stopped being a part of the curriculum, and by the late 1950s, electric power engineering was regarded as a 'passe' subject.

Prof. Henry Price:

Henry was an assistant professor in the late 1940s, a buddy of Prof. George Corcoran. He was about 250 pounds of stocky muscle, and he rode a Harley to work. I remember one day when the task was to deal with a large number of radar oscilloscopes that had arrived on campus as part of war surplus. They were in flimsy wood-timber crates. Henry decided that the best way was to implode them, which he proceeded to do with a German Luger pistol he happened to own. He served for many years as a high-level manager at Goddard Space Flight Center.

Biography:

Walter Beam was the first Ph.D. graduate in Electrical Engineering (EE) at the University of Maryland. Dr. Beam earned his B.S. at the University of Maryland in '47, his M.S. in '50, and his Ph.D. in '53. After graduating, Dr. Beam worked at RCA Laboratories 1952-59, was Professor of EE at Rensselaer Polytechnic Institute's (1959-64), then headed memory research at IBM Research (1964-67) and later was Director of Technology at IBM Systems Development until 1969. During the following four years, he served as an independent consultant and was infringement witness in the ENIAC patent lawsuit. From 1974-1981, he served at the Pentagon, where he was responsible for Research and Advanced Technology in the Office of the Assistant Secretary, R&D, US Air Force. In the early 1980s, he was VP, Research and Development of Sperry (Defense Electronics group) at Great Neck, NY, then worked mainly as a consultant until retirement in 1997. He served as full-time Visiting Professor of Systems Engineering at George Mason University from 1985-89, where he wrote two systems engineering textbooks based on courses he developed. Beam served on the University of Maryland's Engineering College Advisory Council from 1981-83 while serving as VP at Sperry.



VI. A Brief History of Computing Technology in the Electrical Engineering Department

by Rex Root, Retired Electrical Engineering Staff

I. IN THE BEGINNING

1969:

Electrical Engineering Department purchases a PDP 9, a single user computer used to support class and research projects.

1970:

The computer facility is officially named “Computer Simulation Lab.” The lab’s purpose is to support undergraduate class projects and graduate research work.

1971:

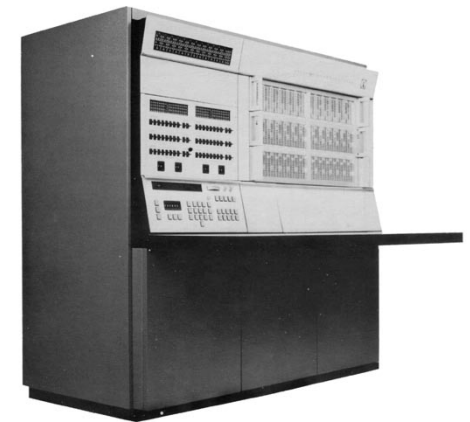
EE Department purchases an Applied Dynamics AD-5 analog computer for the Computer Simulation Lab.

1972:

Department purchases a DEC PDP-11/40, which runs the RSX-11 operating system and supported multiuser. Initially there are 8 users and eventually 16 terminals are hardwired to the PDP-11 mainframe.

The original AT&T, Bell Labs UNIX operating system is purchased to be used on the new PDP-11/40 computer.

The PDP-11 could only run one operating system (OS) at a time, so RSX-11 would run in the morning until about noon and the UNIX OS would run the remainder of the day.



Applied Dynamic AD-5

Email accounts for EE staff and faculty were now available on the PDP-11.

1976:

Astronaut Judith Resnick's research work is done using the PDP-11 and AD-5 computers in the Computer Simulation Lab. Resnick would later die in the space shuttle Challenger accident.

II. REACHING OUT

1981:

The Department's computer facility becomes part of the world wide USENET (a user network which preceded the "Internet").

1984:

Functions of the Computer Simulation Lab have increased. The purpose of the facility is now to support the entire EE Department, which includes word processing along with research and class projects and other department-related computer needs.

The Computer Simulation Lab name vanishes and the lab is now referred to as the EE Computer Facility.

PDP-9 and AD-5 computers were decommissioned and sold.

The EE Computer Facility moves into a temporary area in the Engineering Lab Building while the Engineering Classroom Building (Glenn L. Martin Hall) is being renovated.

Department purchases a DEC VAX-11/780 and ran a different version of the original UNIX operation system - Berkley UNIX (Berkley Software Distribution or BSD).



DEC VAX-11/780, courtesy University Archives

The PDP-11 is still part of the facility running RSX-11 but is used very little.

1986:

AT&T awards the EE Department over \$100,000 in computer equipment to establish an advanced topics laboratory for undergraduates. This results from a proposal submitted by the EE Department and Systems Research Center. Equipment included 7 fully configured Unix personal computers and a larger AT&T 3 BT computer with two advanced graphics terminals. Lab supports both coursework and student projects in such new areas as optimization-based computer aided design, speech and signal processing, artificial intelligence, and computer networking.

1987:

The PDP-11 is decommissioned and given to the Energy Research Facility. Ethernet is propagated throughout the entire Engineering Classroom and Engineering Lab Buildings to support UNIX and Windows workstations.

The EE Computer Facility moves into the newly renovated Glenn L. Martin Hall.

VAX-11/780 computer is moved into the new facility and upgraded to a VAX-11/785.

The Wind Tunnel and Chem-Nuc buildings are also added to the EE-supported Ethernet cable system.

The EE Department now offers Unix support to all the departments within the College of Engineering through remote terminals connected via the Ethernet to the VAX-11/785.

A NEW HOME

1990:

The VAX-11/780 (mainframe) is decommissioned and sold.

The EE Computer Facility relocates into the new A. V. Williams Building. The EE Department discontinues computer support for the college.

The College of Engineering occupies the computer area vacated by EE and begins its own computer support entity.

With the elimination of the “mainframe” concept, each faculty member is given a Sun workstation to serve as their own desktop computer.

1991:

Personal computers (PCs) begin to make their way onto the desks of secretaries and technical typists, eliminating the need for the large Sun workstations and the complex UNIX command system.

Faculty and research students continue to use the technically robust UNIX operating system, which continues to run on the Sun workstations.

A NEW NAME

1999:

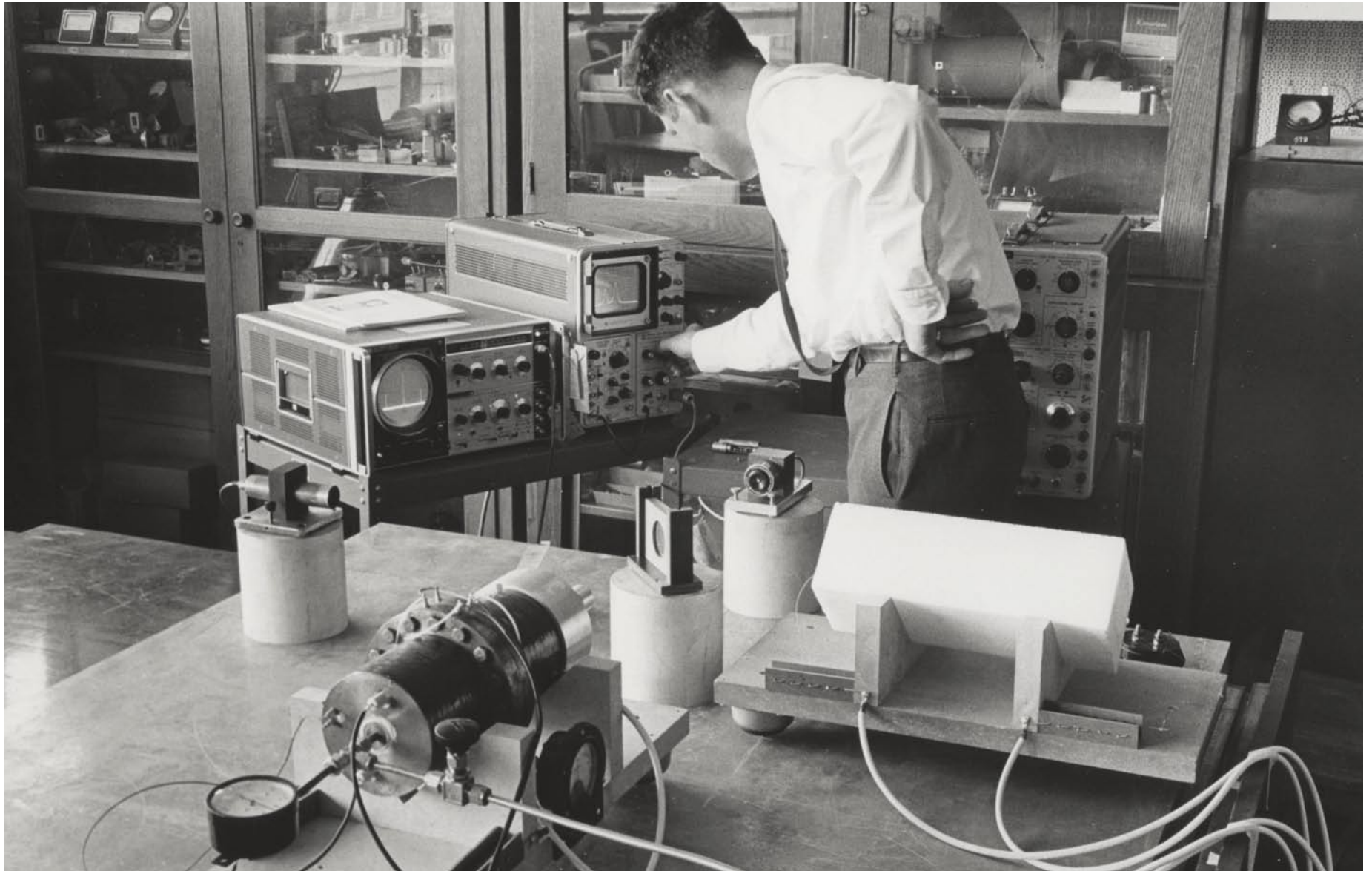
The Electrical Engineering Department’s name is officially changed to the Department of Electrical and Computer Engineering in March of 1999.



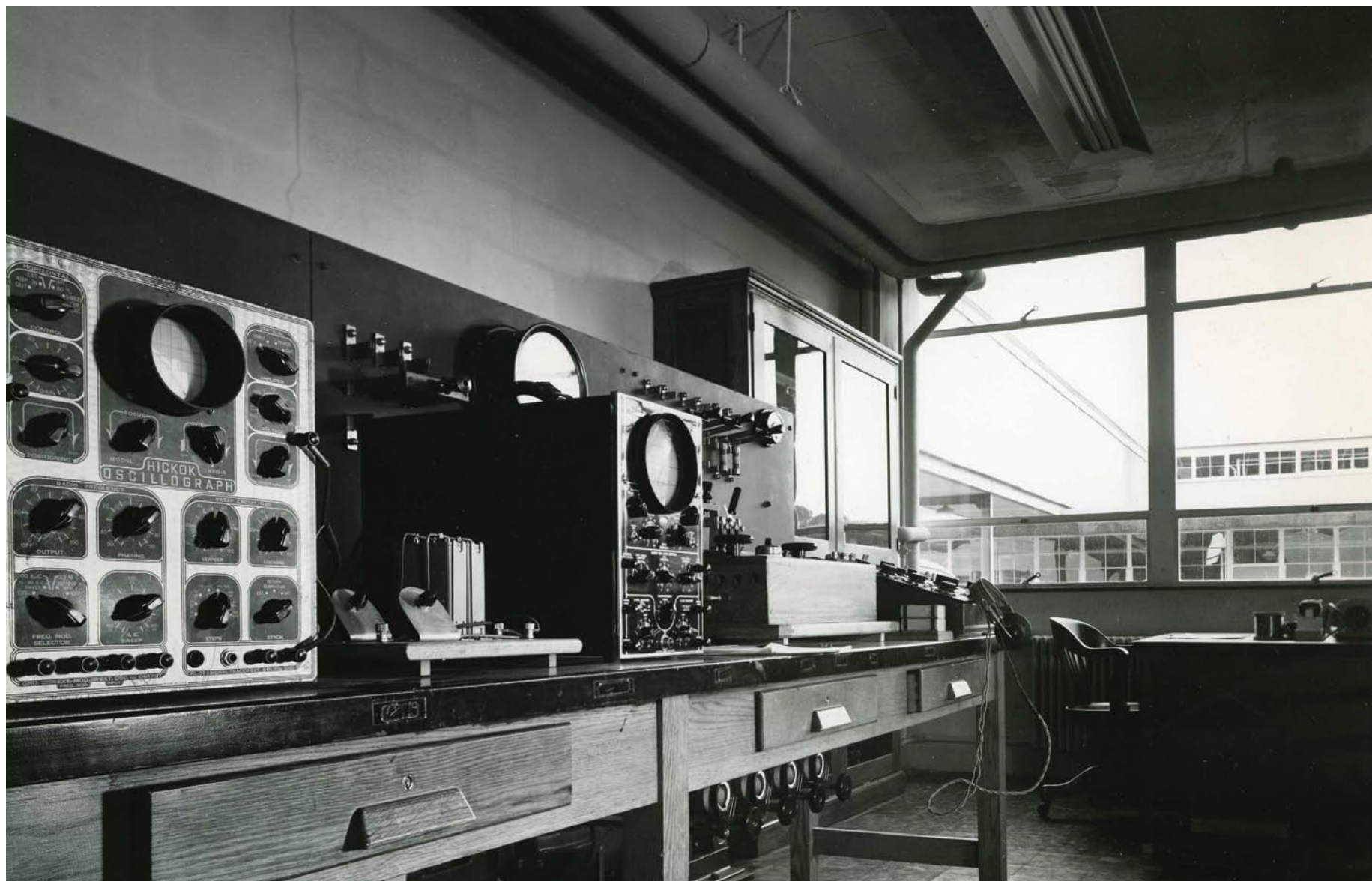
VII. Photos



Electrical engineering lab testing motors for voltage and amp meters in the early 1950s, courtesy University Archives.



Prof. Urs Hochuli adjusts knobs on EE lab equipment, courtesy University Archives.



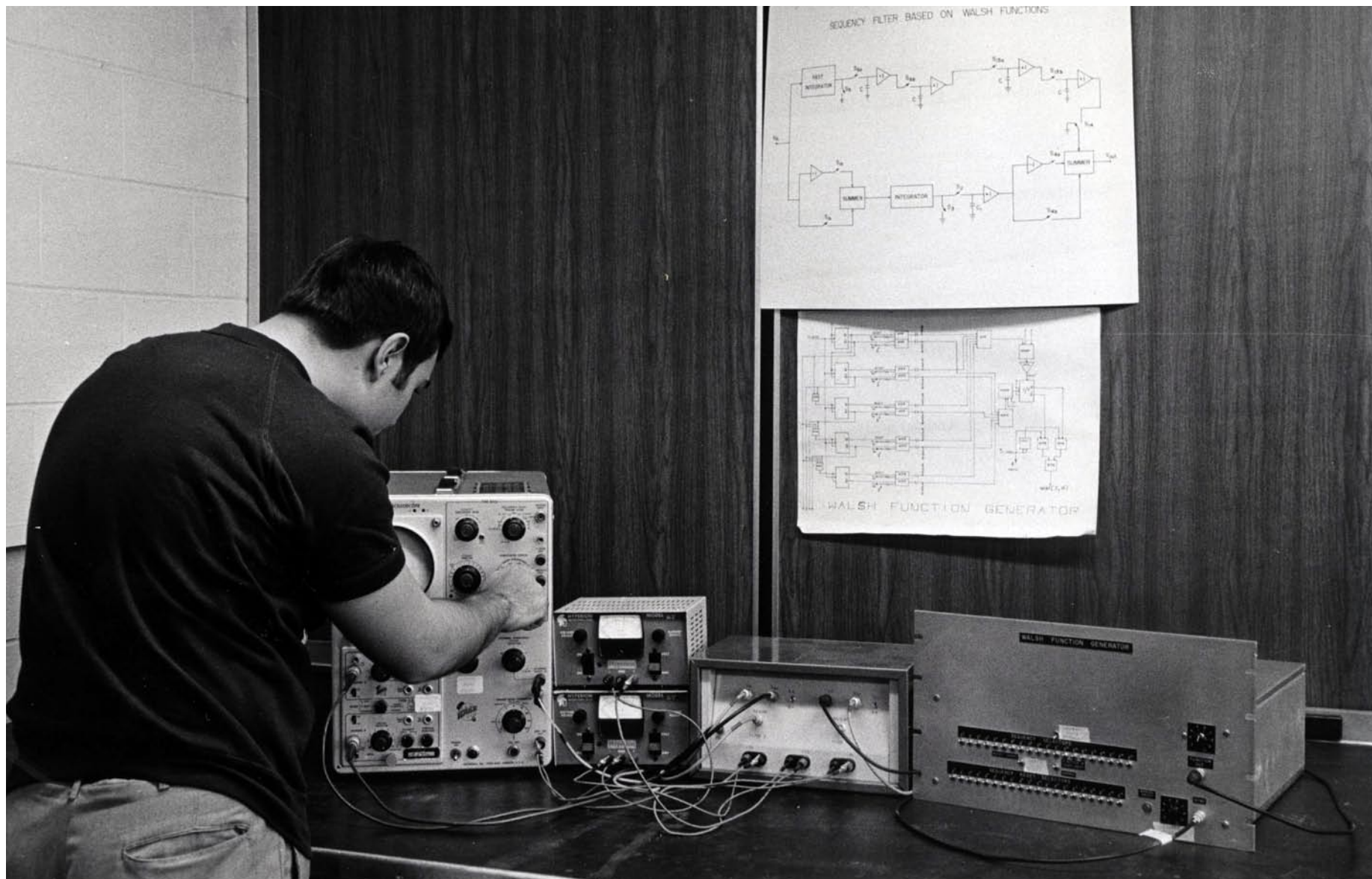
Hickok Oscillograph laboratory equipment, courtesy University Archives.



EE faculty member reviews equations in laboratory, courtesy University Archives.



Faculty in EE laboratory in the 1960s, courtesy University Archives.



Student in EE laboratory, courtesy University Archives.



EE graduating class of 1970, courtesy University Archives.

Headshots from the ECE Photo Archive:



Prof. Urs Hochuli



Prof. Chi Lee



Prof. William Destler



Prof. Moon-Jhong Rhee



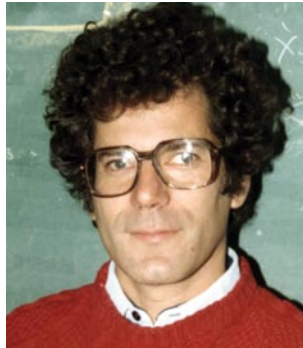
Prof. Charles Silio



Prof. Kazuo Nakajima



Prof. Hung C. Lin



Prof. William Levine



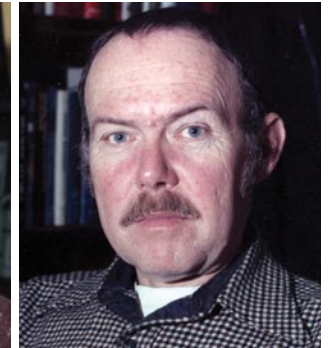
Prof. Gil Blankenship



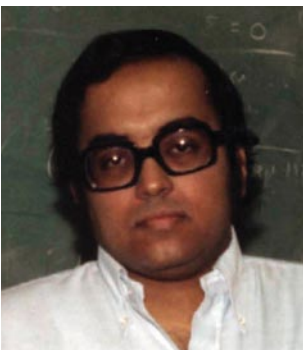
Prof. Tony Ephremides



Prof. John Baras



Prof. Ray Basham



Prof. P.S. Krishnaprasad



Prof. Yaohan Chu



Olivia Goetz, Staff



Dolores Harris, Staff



Rex Root, Staff



Vic Rinker, Staff



Prof. Fawzi Emad



Prof. Leonard Taylor



Prof. Christopher Davis



Prof. Nicholas DeClaris



Prof. Shihab Shamma



Prof. Wesley Lawson



Prof. Martin Reiser



Prof. Isaak Mayergoyz



Prof. Steve Tretter



Paul Haldeman



Prof. Dave Simons



Prof. Robert Harger



Prof. Edward Ott



Prof. James Pugsley



Prof. Lee Davison



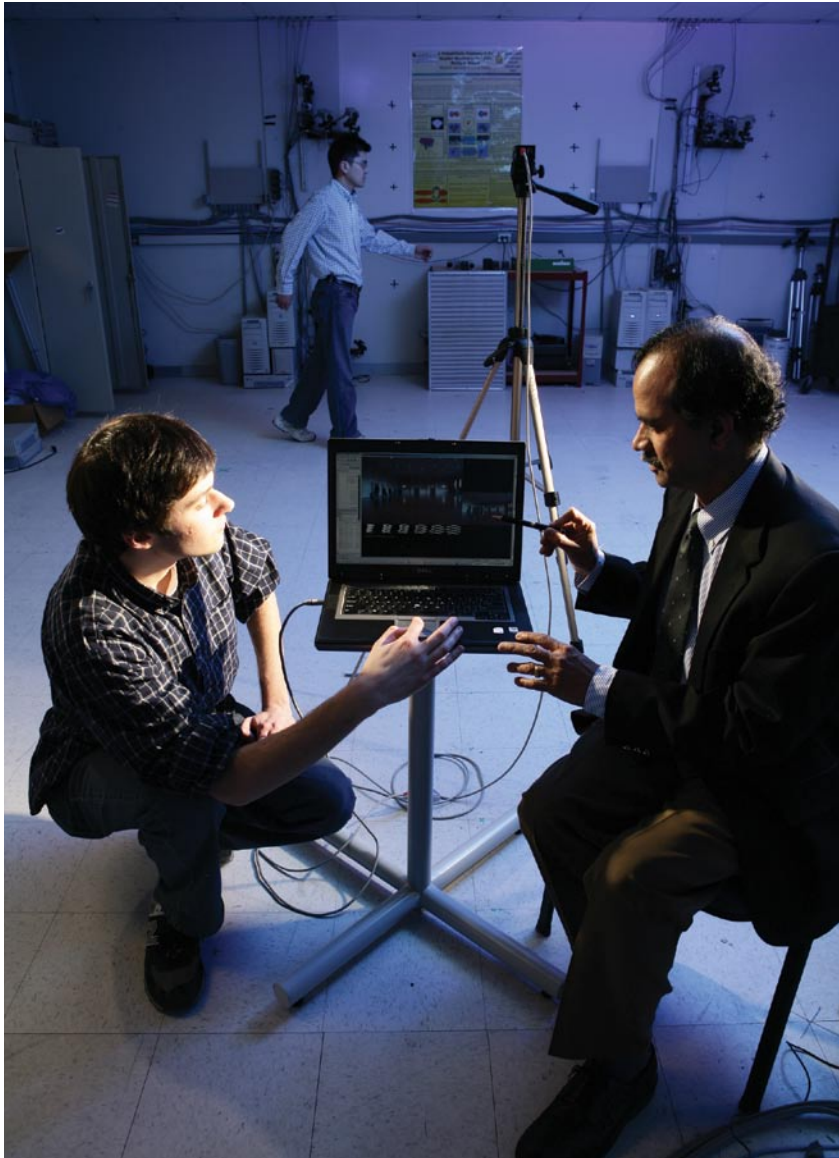
Prof. Henry W. Price



T.R.N. Rao



Prof. Chuck Striffler



Prof. Rama Chellappa with students in the Keck Lab



Prof. Pamela Abshire, Integrated Biomorphic Information Systems Lab



Jeong H. Kim Engineering Building Dedication, September 19, 2005



VIII. Faculty by Year

As listed in University faculty directories

ECE Chairmen/Department Heads:

Myron Creese, 1908-1942
George F. Corcoran, 1942 - 1964
Howard E. Tompkins, 1964 - 1967
Henry Price, 1967 (Acting)
Nicholas DeClaris, 1968 - 1975
Don Gross, 1975 - 1976 (Acting)
Robert O. Harger, 1977 - 1979
James Pugsley, 1980 (Acting)
Lee Davisson, 1980 - 1985
William Destler, 1986 - 1994
Nariman Farvardin, 1994 - 2000
Steven Marcus, 2000 - 2005
Patrick O'Shea, 2005 - present

Deans of Engineering:

T. H. Taliaferro, 1908 - 1921
A. N. Johnson, 1921 - 1936
S. S. Steinberg, 1936 - 1956
George F. Corcoran, 1957 (Acting)
Frederick Mavis, 1957 - 1965
Russell B. Allen, 1965 - 1966
Robert B. Beckman, 1966 - 1976
George E. Dieter, Jr., 1977 - 1994
William W. Destler, 1994 - 1999
Herbert Rabin, 1999 - 2000 (Acting)
Nariman Farvardin, 2000 - 2007
Herbert Rabin, 2007 - present

ECE Faculty Listings by Year:

1908

Myron Creese, Instr., Physics and EE
T. H. Taliaferro, Prof. of Civil Engineering,
EE and Physics

1909-10

Myron Creese, Asst. Prof., Physics and EE
T. H. Taliaferro, Prof. of Civil Engineering,
EE and Physics

1910-11

Myron Creese, Assoc. Prof., Physics & EE
T. H. Taliaferro, Prof. of Civil Engineering,
EE & Physics

1911-12

Myron Creese, Assoc. Prof., Physics & EE
T. H. Taliaferro, Prof. of Civil Engineering,
EE & Physics

1912-13

Myron Creese, Professor
Norman Loraine Clark, Asst. in Physics
and EE

1913-14

Myron Creese, Professor

1914-15

Myron Creese, Professor
C.L.C. Kah, Instr. in EE and Physics

1915-16

Myron Creese, Professor
C.L.C. Kah, Instr. in EE and Physics

1916-17

Myron Creese, Professor
L. J. Hodgins, Instructor, EE and Physics

1917-18

Myron Creese, Professor
L. J. Hodgins, Instructor, EE and Physics

1918

Myron Creese, Professor
L. J. Hodgins, Asst. Prof in EE and Physics

1919

Myron Creese, Professor
L. J. Hodgins, Asst. Prof in EE and Physics

1920

Myron Creese, Professor
L. J. Hodgins, Asst. Prof in EE and Physics
H. D. McMurtray, Asst. Prof., EE &
Physics

1921

Myron Creese, Professor
L. J. Hodgins, Asst. Prof in EE and Physics

1922

Myron Creese, Professor
L. J. Hodgins, Asst. Prof in EE and Physics

1923-24
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1924-25
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1925-26
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1926-27
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1927-28
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1928-29
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1929-30
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1930-31
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1931-32
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1932-33
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1933-34
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1934-35
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1935-36
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1936-37
 Myron Creese, Professor
 L. J. Hodgins, Asst. Prof in EE and Physics

1937-38
 Myron Creese, Professor
 L. J. Hodgins, Assoc. Prof in EE & Physics
 Arne Wikstrom, Asst Prof. of EE
 F. G. Kear, Lecturer in Electrical
 Communication

1938-39
 Myron Creese, Professor
 Arne Wikstrom, Asst. Prof. of EE
 L. J. Hodgins, Assoc. Prof., EE and Physics
 F. G. Kear, Lecturer in Electrical
 Communication

1939-40
 Myron Creese, Professor
 L. J. Hodgins, Assoc. Prof in EE & Physics
 F. G. Kear, Lecturer in Electrical
 Communication
 Willard A. Laning, Jr., Asst. Prof. of EE

1940-41
 Myron Creese, Professor
 L. J. Hodgins, Assoc. Prof in EE & Physics
 Willard A. Laning, Jr., Asst. Prof. of EE
 F. G. Kear, Lecturer in Electrical
 Communication

1941-42
 Myron Creese, Professor
 L. J. Hodgins, Assoc. Prof in EE & Physics
 Willard Arthur Laning, Jr., Asst. Prof., EE
 Gomer L. Davies, Lecturer in Electrical
 Communication
 F. G. Kear, Lecturer in Electrical
 Communication

1942-43
 George F. Corcoran, Professor
 Myron Creese, Professor
 Willard Arthur Laning, Jr., Asst. Prof., EE
 L. J. Hodgins, Assoc. Prof., EE & Physics
 Gomer L. Davies, Lecturer in Electrical
 Communication

1943-44
 George F. Corcoran, Professor
 Myron Creese, Professor

L. J. Hodgins, Assoc. Prof., EE and Physics
Gomer L. Davies, Lecturer in Electrical
Communication

1944-45

George F. Corcoran, Professor
Myron Creese, Professor
L. J. Hodgins, Assoc. Prof., EE and Physics
W. Conley Smith, Asst. Prof.
Gomer L. Davies, Lecturer in Electrical
Communication
T. C. Gordon Wagner, Lecturer in Electronics

1945-46

George F. Corcoran, Professor
Myron Creese, Professor
L. J. Hodgins, Assoc. Prof in EE & Physics
T. C. Gordon Wagner, Lecturer in Electronics
W. Conley Smith, Asst. Prof of EE
Gomer L. Davies, Lecturer in Electrical
Communication

1946-47

George F. Corcoran, Professor
W. Conley Smith, Asst. Prof of EE
Martin Katzin, Lect. In EE
Edward M. Lonsdale, Instr. In EE
Robert A. Herring, Jr., Lect. in Electric Transients
L. J. Hodgins, Assoc. Prof., EE & Physics

1947-48

George F. Corcoran, Professor
Joseph Weber, Instr. In EE
Eric H. Small, Asst. Prof of EE

L. J. Hodgins, Assoc. Prof., EE & Physics
Martin Katzin, Lect. In EE
William R. Ahrendt, Lect. In EE
Jack L. Baxter, Instr. In EE
Walter Beam, Instr. In EE
Gomer L. Davies, Lecturer in Electrical
Communication
Henry R. Reed, Professor
John W. Stuntz, Instr. In EE
Thomas T. Witkowski, Asst. Prof of EE
T. C. Gordon Wagner, Assoc. Prof of EE

1948-49

George F. Corcoran, Professor
Thomas T. Witkowski, Asst. Prof of EE
John W. Stuntz, Instr. In EE
Joseph Weber, Instr. In EE
Eric H. Small, Asst. Prof of EE
Henry R. Reed, Professor
Victor G. Rinker, Asst. in Engineering
Martin Katzin, Lect. In EE
L. J. Hodgins, Assoc. Prof., EE & Physics
Jack L. Baxter, Instr. In EE
Walter R. Beam, Instr. In EE
William R. Ahrendt, Lect. In EE
Gomer L. Davies, Lecturer in Electrical
Communication
Henry W. Price, Instr. In EE
Horace Trent, Assoc. Prof., EE and Physics
T. C. Gordon Wagner, Assoc. Prof of EE

1949-50

George F. Corcoran, Professor
Thomas T. Witkowski, Asst. Prof of EE

Joseph Weber, Professor
T. C. Gordon Wagner, Assoc. Prof of EE
Eric H. Small, Assoc. Prof of EE
Henry R. Reed, Professor
Henry W. Price, Instr. In EE
L. J. Hodgins, Assoc. Prof., EE & Physics
Walter R. Beam, Instr. In EE
Jack L. Baxter, Instr. In EE
William R. Ahrendt, Lect. In EE
Rufus G. Fellers, Lect. In EE
Warren R. Ferris, Lect. In EE
Colin C. Rae, Lab Instr.
Victor G. Rinker, Asst. in Engineering
John R. Shoemaker, Lect. In EE
David G. Thompson, Instr. In EE
Trent M. Horace, Assoc. Prof., EE & Physics

1950-51

George F. Corcoran, Professor
John Stuntz, Lect.
Joseph Weber, Professor
T. C. Gordon Wagner, Assoc. Prof of EE
Eric H. Small, Assoc. Prof of EE
Henry R. Reed, Professor
Henry W. Price, Asst. Prof.
L. J. Hodgins, Assoc. Prof., EE & Physics
Walter R. Beam, Instr. In EE
William D. Becker, Asst. Prof.
William R. Ahrendt, Lect. In EE
Jacob Freeman, Lect.
David E. Simons, Asst. Prof.
David G. Thompson, Instr. In EE
Victor G. Rinker, Asst. in Engineering

1951-52

George F. Corcoran, Professor
John Stuntz, Lect.
T. C. Gordon Wagner, Assoc. Prof of EE
Eric H. Small, Assoc. Prof of EE
Henry R. Reed, Professor
Henry W. Price, Asst. Prof.
L. J. Hodgins, Assoc. Prof., EE & Physics
Walter R. Beam, Instr. In EE
Becker, William D., Asst. Prof.
William R. Ahrendt, Lect. In EE
David E. Simons, Asst. Prof.
Victor G. Rinker, Asst. in Engineering

1952-53

George F. Corcoran, Professor
Henry D. Arnett, Lect.
T. C. Gordon Wagner, Assoc. Prof. of EE
Eric H. Small, Assoc. Prof of EE
Henry R. Reed, Professor
Henry W. Price, Asst. Prof
L. J. Hodgins, Assoc. Prof., EE & Physics
Robert D. Arnold, Lect. In EE
William D. Becker, Asst. Prof
William R. Ahrendt, Lect. In EE
David E. Simons, Asst. Prof.
Victor G. Rinker, Asst. in Engineering
Robert S. Elliott, Asst. Prof.
Rufus G. Fellers, Lect. In EE
Warren R. Ferris, Lect. In EE
Jacob Freeman, Lect.
John E. Hart, Lect.
Martin Katzin, Lect. In EE
Donald Lynch, Lect. In EE

Emanuel Maxwell, Instr.
William A. McCool, Lect.
Gunner P. Ohman, Lect.
Thomas A. Pendleton, Gr. Fellow
Joseph R. Schulman, Lect.
Trent M. Horace, Assoc. Prof in EE & Physics
Joseph Weber, Professor

1953-54

George F. Corcoran, Professor
William S. Alderson, Lect.
T. C. Gordon Wagner, Assoc. Prof of EE
Eric H. Small, Assoc. Prof of EE
Henry R. Reed, Professor
Henry W. Price, Asst. Prof
L. J. Hodgins, Assoc. Prof., EE & Physics
Billy M. Horton, Instr.
William D. Becker, Asst. Prof
William R. Ahrendt, Lect. In EE
David E. Simons, Asst. Prof
Victor G. Rinker, Asst. in Engineering
Philip R. Karr, Lect.
Rufus G. Fellers, Lect. In EE
Warren R. Ferris, Lect. In EE
David S. Muzzey, Jr., Lect.
Earl A. Schuchard, Lect.
Donald Lynch, Lect. In EE
Gunner P. Ohman, Lect.
Thomas A. Pendleton, Gr. Fellow
Joseph R. Schulman, Lect.
Joseph Weber, Professor

1954-55

George F. Corcoran, Professor
William S. Alderson, Lect.

T. C. Gordon Wagner, Assoc. Prof of EE
Eric H. Small, Assoc. Prof of EE
Henry R. Reed, Professor
Henry W. Price, Asst. Prof
L. J. Hodgins, Assoc. Prof., EE & Physics
Billy M. Horton, Instr.
William D. Becker, Asst. Prof
William R. Ahrendt, Lect. In EE
David E. Simons, Asst. Prof.
Victor G. Rinker, Asst. in Engineering
Philip R. Karr, Lect.
Eugene H. Beach, Lect.
Warren R. Ferris, Lect. In EE
David S. Muzzey, Jr., Lect.
Earl A. Schuchard, Lect.
Donald Lynch, Lect. In EE
George A. Lundquist, Instr.
William A. McCool, Lect.
Joseph R. Schulman, Lect.
Joseph Weber, Professor
Gunner P. Ohman, Lect.
John L. Vanderslice, Lect.

1955-56

George F. Corcoran, Professor
T. C. Gordon Wagner, Assoc. Prof of EE
Eric H. Small, Assoc. Prof of EE
Henry R. Reed, Professor
Henry W. Price, Assoc. Prof.
L. J. Hodgins, Assoc. Prof., EE & Physics
William R. Ahrendt, Lect. In EE
David E. Simons, Asst. Prof.
Victor G. Rinker, Asst. in Engineering
Joseph R. Schulman, Lect.

Joseph Weber, Professor
John L. Vanderslice, Lect.
Urs E. Hochuli, Asst. Prof.

1956-57

George F. Corcoran, Professor
Yaohuan Chu, Lect.
T. C. Gordon Wagner, Assoc. Prof of EE
Eric H. Small, Assoc. Prof of EE
Henry R. Reed, Professor
Henry W. Price, Assoc. Prof
L. J. Hodgins, Assoc. Prof., EE & Physics
Thomas A. Pendleton, Gr. Fellow
Urs E. Hochuli, Asst. Prof
Jacob J. Freeman, Lect.
David E. Simons, Asst. Prof.
Victor G. Rinker, Asst. in Engineering
George A. Lundquist, Instr.
William A. McCool, Lect.
Joseph R. Schulman, Lect.
Joseph Weber, Professor
John L. Vanderslice, Lect.

1957-58

George Corcoran, Professor and Chair
Yaohuan Chu, Lect.
Urs E. Hochuli, Asst. Prof
L. J. Hodgins, Assoc. Prof., EE & Physics
Thomas A. Pendleton, Gr. Fellow
Richard W. Phelps, Fellow
Henry W. Price, Assoc. Prof
Henry R. Reed, Professor
Victor G. Rinker, Mechanic
Jeffrey H. Rumbaugh, Instr.

Joseph R. Schulman, Lect.
David E. Simons, Asst. Prof.
Eric H. Small., Assoc. Prof
David G. Thompson, Instr.
John L. Vanderslice, Lect.
Thomas C. G. Wagner, Assoc. Prof
Joseph Weber, Professor

1958-59

George Corcoran, Professor and Chair
Yaohuan Chu, Lect.
Jacob J. Freeman, Lect.
Robert M. Ginnings, Instr.
William R. Hahn, Instr.
Urs E. Hochuli, Asst. Prof
Lawrence J. Hodgins, Assoc. Prof
Harold J. Jones, Instr.
Thomas A. Pendleton, Grad Fellow
Richard W. Phelps, Fellow
Henry W. Price, Assoc. Prof
Henry R. Reed, Professor
Victor G. Rinker, Lab Mechanic
Jeffrey H. Rumbaugh, Instr.
Joseph R. Schulman, Lect.
David E. Simons, Asst. Prof
Eric H. Small, Assoc. Prof
David G. Thompson, Instr.
John L. Vanderslice, Lect.
Thomas C. G. Wagner, Assoc. Prof
Joseph Weber, Professor

1959-60

George Corcoran, Professor and Chair
Yaohuan Chu, Lect.

Robert M. Ginnings, Instr.
William R. Hahn, Instr.
Urs E. Hochuli, Asst. Prof
Lawrence J. Hodgins, Assoc. Prof
Douglas L. Hogan, Lect.
Harold C. Jones, Instr.
Henry W. Price, Assoc. Prof
Henry R. Reed, Professor
Victor G. Rinker, Lab Mechanic
Jeffrey H. Rumbaugh, Instr.
Giovanni P. Rutelli, Assoc. Prof
Joseph R. Schulman, Lect.
David E. Simons, Asst. Prof
Eric H. Small, Assoc. Prof
David G. Thompson, Instr.
John L. Vanderslice, Lect.
Thomas C. G. Wagner, Assoc. Prof

1960-61

George Corcoran, Professor and Chair
Yaohuan Chu, Lect.
Thomas R. Evans, Asst. Instr.
Jacob J. Freeman, Lect.
Russell Glock, Jr., Instr.
William R. Hahn, Instr.
Douglas L. Hogan, Lect.
Harold C. Jones, Instr.
Henry W. Price, Assoc. Prof
Henry R. Reed, Professor
Victor G. Rinker, Lab Mechanic
Jeffrey H. Rumbaugh, Instr.
Giovanni P. Rutelli, Assoc. Prof.
Joseph R. Schulman, Lect.
David E. Simons, Asst. Prof.

Eric H. Small, Assoc. Prof.
John L. Vanderslice, Lect.
Thomas C. G. Wagner, Assoc. Prof.
Jerome V. Larson, Instr.
Joseph Weber, Professor
Urs E. Hochuli, Asst. Prof.

1961-62

George Corcoran, Professor and Chair
Jerome A. Camp, Fellow
Yaohuan Chu, Lect.
Jacob J. Freeman, Lect.
Russell Glock, Jr., Instr.
William R. Hahn, Instr.
Harold C. Jones, Instr.
Henry W. Price, Assoc. Prof.
Henry R. Reed, Professor
Victor G. Rinker, Lab Mechanic
Jeffrey H. Rumbaugh, Instr.
Giovanni P. Rutelli, Assoc. Prof.
Joseph R. Schulman, Lect.
David E. Simons, Assoc. Prof.
Eric H. Small, Assoc. Prof.
John L. Vanderslice, Lect.
Thomas C. G. Wagner, Assoc. Prof.
Jerome V. Larson, Instr.
Joseph Weber, Professor
Robert M. Ginnings, Instr.
Urs E. Hochuli, Asst. Prof.
David G. Thompson, Instr.
Chu Y. Yu, Grad Fellow

1962-63

George F. Corcoran, Professor and Chair
Yaohan Chu, Lect.

Robert M. Ginnings, Instr.
Russell Glock, Jr., Instr.
William R. Hahn, Instr.
Paul R. Haldemann, Res. Engr.
Urs E. Hochuli, Assoc. Prof.
Douglas L. Hogan, Lect.
Jerome V. Larson, Instr.
Henry W. Price, Assoc. Prof.
Henry R. Reed, Professor
Victor G. Rinker, Lab Mechanic
Jeffrey H. Rumbaugh, Instr.
Giovanni P. Rutelli, Assoc. Prof.
Joseph R. Schulman, Lect.
David E. Simons, Assoc. Prof.
Eric H. Small, Assoc. Prof.
David G. Thompson, Instr.
John L. Vanderslice, Lect.
Thomas C. G. Wagner, Professor

1965-66

Howard Tompkins, Professor and Chair
Ray Basham, Assoc. Prof.
Yaohan Chu, Prof.
James Degenford, Lect.
Clifford Ferris, Assoc. Prof.
Gerald Friedman, Instr.
Robert M. Ginnings, Asst. Prof.
Russell Glock, Jr., Instr.
Arun Guha, Instr.
William R. Hahn, Instr.
Paul R. Haldemann, Res. Engr.
Urs E. Hochuli, Assoc. Prof.
Harold Jones, Lect.
Jerome V. Larson, Instr.

Alan Marcovitz, Asst. Prof.
Richard Martin, Instr.
Edward F. Miller, Jr., Instr.
Michael Moldavsky, Instr.
Thomas Moore, Res. Asst.
Erik W. Pottala, Instr.
Henry W. Price, Assoc. Prof.
James Pugsley, Asst. Prof.
Henry R. Reed, Professor
Martin Reiser, Assoc. Prof.
Victor G. Rinker, Lab Mechanic
Giovanni P. Rutelli, Assoc. Prof.
Jeffrey H. Rumbaugh, Instr.
Joseph R. Schulman, Lect.
David E. Simons, Assoc. Prof.
Thomas C. G. Wagner, Professor
Lawrence R. Whicker, Lect.

1966-67

Howard Tompkins, Professor and Chair
George Abraham, Res. Asst.
Marshall D. Abrams, Asst. Prof.
Ray Basham, Assoc. Prof.
William M. Bullis, Lect.
Andrew R. Cohen, Lect.
Theodore R. Colburn, Instr.
James Degenford, Lect.
John Fearnside, Instr.
Clifford Ferris, Assoc. Prof.
Ahmed Firouzabadi, Instr.
Arun Guha, Instr.
Robert M. Ginnings, Asst. Prof.
Russell Glock Jr., Instr.
William R. Hahn, Instr.

Paul R. Haldemann, Res. Engr.
E. Norman Hernandez, Instr.
Urs E. Hochuli, Assoc. Prof.
Harold Jones, Lect.
Hogil Kim, Asst. Prof.
Edward F. Miller Jr. Instr.
Erik W. Pottala, Instr.
Henry W. Price, Assoc. Prof
James Pugsley, Asst. Prof
Henry R. Reed, Professor
Thammavarapu Rao, Asst. Prof
Martin Reiser, Assoc. Prof
Victor G. Rinker, Lab Mechanic
Frederick Rojak, Lect.
Giovanni P. Rutelli, Assoc. Prof
Jeffrey H. Rumbaugh, Instr.
Joseph R. Schulman, Lect.
David E. Simons, Assoc. Prof.
Steven Tretter, Asst. Prof.
Thomas C. G. Wagner, Professor
Lawrence R. Whicker, Lect.

1968-69

Nicholas DeClariss, Professor and Chair
George Abraham, Res. Asst.
Marshall D. Abrams, Asst. Prof.
Ray Basham, Assoc. Prof.
Theodore R. Colburn, Instr.
James Degenford, Lect.
Fawzi Emad, Asst. Prof
Robert M. Ginnings, Asst. Prof.
Russell Glock Jr., Instr.
Arun Guha, Instr.
Robert Harger, Assoc. Prof.

Urs E. Hochuli, Assoc. Prof
Jess, Jochen, Assoc. Prof
Harold Jones, Inst.
Hogil Kim, Asst. Prof.
Jerome V. Larson, Instr.
Chi Lee, Asst. Prof
David Levine, Asst. Prof
Alfred Lieberman, Asst. Prof
Hung Lin, Lect.
Alan Marcovitz, Assoc. Prof
Prafall Misra, Res. Asst.
James Morakis, Lect
Erik W. Pottala, Instr.
Henry W. Price, Professor
James Pugsley, Assoc. Prof
Thammavarapu Rao, Assoc. Prof
Martin Reiser, Assoc. Prof
Victor G. Rinker, Lab Mechanic
Jeffrey H. Rumbaugh, Asst. Prof.
Giovanni P. Rutelli, Professor
James Schaefer, Res. Asst.
Sadegh Siahatgar, Asst. Prof
David E. Simons, Assoc. Prof.
Leonard Taylor, Assoc. Prof.
Steven Tretter, Asst. Prof.
Leonard Weiss, Professor
Lawrence R. Whicker, Lect.

1969-70

Nicholas DeClariss, Professor and Chair
Ray Basham, Assoc. Prof.
Theodore R. Colburn, Lect.
Richard P. Dooley, Asst. Prof.
Fawzi Emad, Asst. Prof.

Gerald Friedman, Asst. Prof.
Russell Glock Jr., Instr.
Henning F. Harmuth, Assoc. Prof.
Robert O. Harger, Assoc. Prof
Urs E. Hochuli, Assoc. Prof.
Paul R. Haldemann, Res. Engr.
Arun Guha, Asst. Prof.
Hogil Kim, Asst. Prof.
William S. Levine, Asst. Prof
Chi Lee, Asst. Prof.
David Levine, Asst. Prof.
Hung C. Lin, Professor
Alfred Lieberman, Asst. Prof
Robert Littlepage, Instr.
Alan Marcovitz, Assoc. Prof
James Morakis, Lect.
Jeffrey H. Rumbaugh, Asst. Prof.
Rex L. Root, Res. Tech
P. N. Robinson, Asst. Prof
Victor G. Rinker, Lab Mechanic
Martin Reiser, Assoc. Prof
Joseph R. Schulman, Lectr.
Sadegh Siahatgar, Asst. Prof
David E. Simons, Assoc. Prof
Leonard Taylor, Assoc. Prof
Torres, Assoc. Prof
Steven Tretter, Asst. Prof
Thomas C. G. Wagner, Professor

1971-72

Nicholas DeClariss, Professor and Chair
Phichani Bodharamik, Res. Asst.
Alfred G. Lieberman, Asst. Prof.
Panos A. Ligomenides, Professor

Fawzi P. Emad, Assoc. Prof
Hung C. Lin, Professor
Anthony Ephremides, Asst. Prof.
Robert S. Littlepage, Instr.
Gerald E. Friedman, Asst. Prof.
Robert W. Newcomb, Professor
Philip G. Gallman, Visiting Asst. Prof.
Emmett P. O' Grady, Asst. Prof
Russell Glock Jr., Instr.
Jasna Opacic, Asst. Prof.
Robert O. Harger, Assoc. Prof.
Vasile-Mihai V. Popov, Professor
Urs E. Hochuli, Assoc. Prof.
James H. Pugsley, Assoc. Prof.
Eddy H. Huang, Res. Asst.
Jeffrey H. Rumbaugh, Asst. Prof.
Myong C. Kim, Research Assoc.
Joseph R. Schulman, Lectr.
Chi H. Lee, Asst. Prof.
David E. Simons, Assoc. Prof.
Thomas P. Lee, Fellow
Leonard S. Taylor, Professor
David M. Levine, Asst. Prof.
Steven Tretter, Professor
William S. Levine, Asst. Prof.
Thomas C.G. Wagner, Professor
Marshall D. Abrams, Assoc. Prof.
Felix E. Zajac III, Asst. Prof.
Ray S. Basham, Assoc. Prof.
Kawthar A. Zaki, Asst. Prof.
Paul R. Haldermann, Research Assoc.
Robert S. Printis, Res. Asst.
Rex L. Root, Res. Tech.
Ronald W. Sumner, Res. Tech.

Victor G. Rinker, Lab Mechanic
P.N. Robinson, Asst. Prof.
T. R. Rao, Assoc. Prof.
Martin Reiser, Professor
Moon-Jhong Rhee, Asst. Prof.

1972-73
Nicholas DeClaris, Professor and Chair
Ray Basham, Assoc. Prof.
Russell Glock Jr., Instr.
Fawzi Emad, Assoc. Prof.
William R. Hahn, Instr.
Robert O. Harger, Assoc. Prof.
Harold C. Jones, Instr.
Hogil Kim, Assoc. Prof.
Jerome V. Larson, Instr.
Henry W. Price, Assoc. Prof.
Robert S. Littlepage, Instr.
James Pugsley, Assoc. Prof.
Jeffrey H. Rumbaugh, Instr.
T. R. Rao, Assoc. Prof.
David G. Thompson, Instr.
Giovanni P. Rutelli, Assoc. Prof
Victor G. Rinker, Lab Mechanic
David E. Simons, Assoc. Prof.
Yaohan Chu, Lect.
Eric H. Small, Assoc. Prof
Theodore Colburn, Lect.
Torres, Assoc. Prof.
Freeman, Jacob J., Lect.
Steven Tretter, Assoc. Prof.
James Morakis, Lect.
Thomas C. G. Wagner, Assoc. Prof.
Joseph R. Schulman, Lect.

Chang, Asst. Prof.
Vanderslice, John L., Lect.
Anthony Ephremides, Asst. Prof.
Nicholas DeClaris, Professor
Gerald E. Friedman, Asst. Prof
Panos A. Ligomenides, Professor
Philip G. Gallman, Asst. Prof.
Hung C. Lin, Professor
Urs E. Hochuli, Asst. Prof
Robert Newcomb, Professor
Chi Lee, Asst. Prof.
Vasile-Mihai V. Popov, Professor
David LeVine, Asst. Prof.
Henry R. Reed, Professor
Alfred G. Lieberman, Asst. Prof.
Martin Reiser, Professor
Emmett P.O' Grady, Asst. Prof.
Giovanni P. Rutelli, Professor
Jasna Opacic, Asst. Prof.
Shekel, Professor
Pinkston, Asst. Prof.
Leonard Taylor, Professor
Moon-Jhong Rhee, Asst. Prof.
Joseph Weber, Professor
P. N. Robinson, Asst. Prof.
Leonard Weiss, Professor
Felix E. Zajac III, Asst. Prof.
Kawthar Zaki, Asst. Prof.
Marshall D. Abrams, Fellow
Chu Y. Yu, Grad Fellow
Robert M. Ginnings, Instr.

1973-74
Nicholas DeClaris, Professor and Chair
James Pugsley, Assoc. Prof.

Caceres, Professor
T. R. Rao, Assoc. Prof.
Yaohan Chu, Professor
David E. Simons, Assoc. Prof
Shahid Durrani, Professor
Torres, Assoc. Prof.
Urs E. Hochuli, Professor
Steven Tretter, Assoc. Prof.
Panos A. Ligomenides, Professor
Chi Lee, Assoc. Prof.
Hung C. Lin, Professor
Shabana, Assoc. Prof.
Robert Newcomb, Professor
Boston, Asst. Prof.
Vasile-Mihai V. Popov, Professor
Degtyar, Asst. Prof.
Martin Reiser, Professor
Anthony Ephremides, Asst. Prof.
Giovanni P. Rutelli, Professor Emeritus
Gerald E. Friedman, Asst. Prof.
Leonard Taylor, Professor
Philip G. Gallman, Asst. Prof.
Thomas C. G. Wagner, Professor
David LeVine, Asst. Prof.
Leonard Weiss, Professor
Alfred G. Lieberman, Asst. Prof.
Marshall D. Abrams, Assoc. Prof.
Emmett O' Grady, Asst. Prof.
Ray Basham, Assoc. Prof.
Moon-Jhong Rhee, Asst. Prof.
Fawzi Emad, Assoc. Prof
Felix E. Zajac III, Asst. Prof.
Robert O. Harger, Assoc. Prof
Kawthar Zaki, Asst. Prof

Hogil Kim, Assoc. Prof
Williams S. Levine, Asst. Prof.
Theodore Colburn, Lect.
Mario Paez, Asst. Prof.
Eric Pottala, Lect.
P.N. Robinson, Asst. Prof
Robert S. Littlepage, Instr.
Charles Silio, Asst. Prof
Castro, Instr.

1974-75
Nicholas DeClariss, Professor and Chair
David E. Simons, Assoc. Prof.
Yaohan Chu, Professor
Torres, Assoc. Prof.
Urs E. Hochuli, Professor
Steven Tretter, Assoc. Prof.
Panos A. Ligomenides, Professor
Felix E. Zajac III, Assoc. Prof.
Hung C. Lin, Professor
Moore, Assoc. Prof.
Robert Newcomb, Professor
John Baras, Asst. Prof.
Martin Reiser, Professor
Boston, Asst. Prof.
Giovanni P. Rutelli, Professor Emeritus
Eden, Asst. Prof.
Leonard Taylor, Professor
Anthony Ephremides, Asst. Prof
Thomas C. G. Wagner, Professor
Palicio, Asst. Prof.
Leonard Weiss, Professor
Philip G. Gallman, Asst. Prof.
Ray Basham, Assoc. Prof.
Emmett P. O' Grady, Asst. Prof.

Fawzi Emad, Assoc. Prof.
Mario Paez, Asst. Prof.
Robert O. Harger, Assoc. Prof.
Moon-Jhong Rhee, Asst. Prof.
Hogil Kim, Assoc. Prof.
Charles Silio, Asst. Prof.
Chi Lee, Assoc. Prof.
Kawthar Zaki, Asst. Prof.
Williams S. Levine, Assoc. Prof.
Charles Alexander, Lect.
James Pugsley, Assoc. Prof.
Theodore Colburn, Lect.
T. R. Rao, Assoc. Prof.
Eric Pottala, Lect.
Castro, Instr.

1975-76
Nicholas DeClariss, Professor and Chair
Williams S. Levine, Assoc. Prof.
Caceres, Professor
James Pugsley, Assoc. Prof.
Yaohan Chu, Professor
T. R. Rao, Assoc. Prof.
Urs E. Hochuli, Professor
Anthony Ephremides, Assoc. Prof
Panos A. Ligomenides, Professor
Moon-Jhong Rhee, Assoc. Prof,
Hung C. Lin, Professor
David E. Simons, Assoc. Prof.
Robert Newcomb, Professor
Torres, Assoc. Prof.
Martin Reiser, Professor
Steven Tretter, Assoc. Prof.
Giovanni P. Rutelli, Professor Emeritus

Felix E. Zajac III, Assoc. Prof.
Leonard Taylor, Professor
Kawthar Zaki, Assoc. Prof.
Thomas C. G. Wagner, Professor
John Baras, Asst. Prof.
Leonard Weiss, Professor
Boston, Asst. Prof.
Ray Basham, Assoc. Prof.
Eden, Asst. Prof.
Fawzi Emad, Assoc. Prof.
Philip G. Gallman, Asst. Prof.
Robert O. Harger, Assoc. Prof.
Emmett P. O' Grady, Asst. Prof.
Hogil Kim, Assoc. Prof.
Mario Paez, Asst. Prof.
Chi Lee, Assoc. Prof.
Charles Silio, Asst. Prof.
William Destler, Lect.
Charles Striffler, Asst. Prof.
George Bailey, Instr.
Theodore Colburn, Lect.

1976-77

Robert O. Harger, Professor and Chair
James Pugsley, Assoc. Prof.
Nicholas DeClaris, Professor
Moon-Jhong Rhee, Assoc. Prof.
Caceres, Professor
David E. Simons, Assoc. Prof.
Yaohan Chu, Professor
Torres, Assoc. Prof.
Urs E. Hochuli, Professor
Steven Tretter, Assoc. Prof.
Panos A. Ligomenides, Professor

Felix E. Zajac III, Assoc. Prof
Hogil Kim, Professor
Kawthar Zaki, Assoc. Prof
Hung C. Lin, Professor
John Baras, Asst. Prof
Robert Newcomb, Professor
William Destler, Asst. Prof.
Martin Reiser, Professor
Eden, Asst. Prof.
T. R. Rao, Professor
Philip G. Gallman, Asst. Prof
Giovanni P. Rutelli, Professor Emeritus
Emmett P. O' Grady, Asst. Prof
Leonard Taylor, Professor
Mario Paez, Asst. Prof
Thomas C. G. Wagner, Professor
Charles Silio, Asst. Prof
Leonard Weiss, Professor
Charles Striffler, Asst. Prof
Ray Basham, Assoc. Prof
Marco Vaca, Asst. Prof.
Fawzi Emad, Assoc. Prof
Theodore Colburn, Lect.

Anthony Ephremides, Assoc. Prof
George Bailey, Instr.
Chi Lee, Assoc. Prof
Pottala, Lect.
Williams S. Levine, Assoc. Prof
Joseph R. Schulman, Lect.

1977-78

Robert O. Harger, Professor and Chair
James Pugsley, Assoc. Prof
Yaohan Chu, Professor

Moon-Jhong Rhee, Assoc. Prof
Lee Davisson, Professor
David E. Simons, Assoc. Prof.
Nicholas DeClaris, Professor
Steven Tretter, Assoc. Prof.
Urs E. Hochuli, Professor
Felix E. Zajac III, Assoc. Prof.
Panos A. Ligomenides, Professor
Kawthar Zaki, Assoc. Prof.
Hogil Kim, Professor
John Baras, Asst. Prof.
Hung C. Lin, Professor
Christopher Davis, Asst. Prof.
Robert Newcomb, Professor
William Destler, Asst. Prof
Martin Reiser, Professor
Philip G. Gallman, Asst. Prof.
T. R. Rao, Professor
Emmett P. O' Grady, Asst. Prof.
Leonard Taylor, Professor
Mario Paez, Asst. Prof.
Thomas C. G. Wagner, Professor
Charles Silio, Asst. Prof.
Leonard Weiss, Professor
Charles Striffler, Asst. Prof.
Ray Basham, Assoc. Prof.
Marco Vaca, Asst. Prof
Fawzi Emad, Assoc. Prof
Cheung, Lect.
Anthony Ephremides, Assoc. Prof
Alan Mink, Lect.
Chi Lee, Assoc. Prof.
John Pinkston, Lect.
Williams S. Levine, Assoc. Prof

Joseph R. Schulman, Lect.
Wilhelm, Instr.
Siahatager, Lect.
Al Leon-Garcia, Visiting Asst. Prof.
White, Lect.

1978-79

Robert O. Harger, Professor
Moon-Jhong Rhee, Assoc. Prof.
Yaohan Chu, Professor
Charles Silio, Assoc. Prof.
Lee Davisson, Professor
David E. Simons, Assoc. Prof.
Nicholas DeClariss, Professor
Steven Tretter, Assoc. Prof.
Urs E. Hochuli, Professor
Felix E. Zajac III, Assoc. Prof.
Panos A. Ligomenides, Professor
Kawthar Zaki, Assoc. Prof.
Hogil Kim, Professor
Alex Conn, Asst. Prof.
Hung C. Lin, Professor
Christopher Davis, Asst. Prof.
Robert Newcomb, Professor
William Destler, Asst. Prof.
Martin Reiser, Professor
Mario Paez, Asst. Prof.
Leonard Taylor, Professor
Charles Striffler, Asst. Prof.
Leonard Weiss, Professor
Shih Ho Wang, Asst. Prof.
John Baras, Assoc. Prof.
Yee, Asst. Prof.
Ray Basham, Assoc. Prof.

Joseph R. Schulman, Lect.
Fawzi Emad, Assoc. Prof.
Dimopoulos, Instr.
Anthony Ephremides, Assoc. Prof.
Moura, Instr.
Chi Lee, Assoc. Prof.
Mowafi, Instr.
Williams S. Levine, Assoc. Prof.
Novakovic, Instr.
James Pugsley, Assoc. Prof.

1979-80

Robert O. Harger, Professor and Chair
Moon-Jhong Rhee, Assoc. Prof.
Yaohan Chu, Professor
Charles Silio, Assoc. Prof.
Lee Davisson, Professor
David E. Simons, Assoc. Prof.
Nicholas DeClariss, Professor
Steven Tretter, Assoc. Prof.
Urs E. Hochuli, Professor
Felix E. Zajac III, Assoc. Prof.
Panos A. Ligomenides, Professor
Kawthar Zaki, Assoc. Prof.
Hung C. Lin, Professor
Conn, Asst. Prof.
Robert Newcomb, Professor
Christopher Davis, Asst. Prof.
Martin Reiser, Professor
William Destler, Asst. Prof.
Leonard Taylor, Professor
Charles Striffler, Asst. Prof.
John Baras, Assoc. Prof.
Shih Ho Wang, Asst. Prof.

Ray Basham, Assoc. Prof.
Yee, Asst. Prof.
Fawzi Emad, Assoc. Prof.
Anthony Ephremides, Assoc. Prof.
Chi Lee, Assoc. Prof.
Williams S. Levine, Assoc. Prof.
James Pugsley, Assoc. Prof.

1980-81

Lee Davisson, Professor and Chair
Robert O. Harger, Professor
John Baras, Assoc. Prof.
Yaohan Chu, Professor
Ray Basham, Assoc. Prof.
Fawzi Emad, Assoc. Prof.
Nicholas DeClariss, Professor
Anthony Ephremides, Assoc. Prof.
Urs E. Hochuli, Professor
Williams S. Levine, Assoc. Prof.
Panos A. Ligomenides, Professor
James Pugsley, Assoc. Prof.
Hung C. Lin, Professor
Moon-Jhong Rhee, Assoc. Prof.
Chi Lee, Professor
Charles Silio, Assoc. Prof.
Robert Newcomb, Professor
David E. Simons, Assoc. Prof.
Martin Reiser, Professor
Steven Tretter, Assoc. Prof.
Leonard Taylor, Professor
Charles Striffler, Assoc. Prof.
Edward Ott, Professor
Shih Ho Wang, Assoc. Prof.
White, Professor

Kawthar Zaki, Assoc. Prof.
Alex Conn, Asst. Prof.
Gilmer Blankenship, Assoc. Prof.
Christopher Davis, Asst. Prof.
William Destler, Asst. Prof.

1981-82

Lee Davisson, Professor and Chair
John Baras, Assoc. Prof.
Robert O. Harger, Professor
Ray Basham, Assoc. Prof.
Yaohan Chu, Professor
Gilmer Blankenship, Assoc. Prof.
Nicholas DeClaris, Professor
Christopher Davis, Assoc. Prof.
Urs E. Hochuli, Professor
William Destler, Assoc. Prof.
Panos A. Ligomenides, Professor
Fawzi Emad, Assoc. Prof.
Hung C. Lin, Professor
Anthony Ephremides, Assoc. Prof.
Chi Lee, Professor
Williams S. Levine, Assoc. Prof.
Robert Newcomb, Professor
James Pugsley, Assoc. Prof.
Martin Reiser, Professor
Moon-Jhong Rhee, Assoc. Prof.
Leonard Taylor, Professor
Charles Silio, Assoc. Prof.
Edward Ott, Professor
David E. Simons, Assoc. Prof.
White, Professor
Steven Tretter, Assoc. Prof.
P. S. Krishnaprasad, Asst. Prof.

Charles Striffler, Assoc. Prof.
Shih Ho Wang, Assoc. Prof.
Kawthar Zaki, Assoc. Prof.

1982-83

Lee Davisson, Professor and Chair
John Baras, Assoc. Prof.
Yaohan Chu, Professor
Ray Basham, Assoc. Prof.
Nicholas DeClaris, Professor
Gilmer Blankenship, Assoc. Prof.
Anthony Ephremides, Professor
Christopher Davis, Assoc. Prof.
Kenneth Galloway, Professor
William Destler, Assoc. Prof.
Robert O. Harger, Professor
Fawzi Emad, Assoc. Prof.
Urs E. Hochuli, Professor
James Pugsley, Assoc. Prof.
Panos A. Ligomenides, Professor
Moon-Jhong Rhee, Assoc. Prof.
Chi Lee, Professor
Charles Silio, Assoc. Prof.
Williams S. Levine, Professor
David E. Simons, Assoc. Prof.
Hung C. Lin, Professor
Steven Tretter, Assoc. Prof.
Isaak Mayergoyz, Professor
Charles Striffler, Assoc. Prof.
Robert Newcomb, Professor
Shih Ho Wang, Assoc. Prof.
Martin Reiser, Professor
Kawthar Zaki, Assoc. Prof.
Leonard Taylor, Professor

Stavros Belbas, Asst. Prof.
Edward Ott, Professor
Ping-Tong Ho, Asst. Prof.
P. S. Krishnaprasad, Asst. Prof.
Prakash Narayan, Asst. Prof.
Armand Makowski, Asst. Prof.
Andre Tits, Asst. Prof.
W. Namkung, Asst. Prof.
E.E. Ftehenakis, Adjunct. Professor

1983-84

Lee Davisson, Professor and Chair
John Baras, Professor
Yaohan Chu, Professor
Gilmer Blankenship, Professor
Nicholas DeClaris, Professor
Christopher Davis, Assoc. Prof.
Anthony Ephremides, Professor
William Destler, Assoc. Prof.
Kenneth Galloway, Professor
Fawzi Emad, Assoc. Prof.
Robert O. Harger, Professor
James Pugsley, Assoc. Prof.
Urs E. Hochuli, Professor
Moon-Jhong Rhee, Assoc. Prof.
Panos A. Ligomenides, Professor
Charles Silio, Assoc. Prof.
Chi Lee, Professor
David E. Simons, Assoc. Prof.
Williams S. Levine, Professor
Steven Tretter, Assoc. Prof.
Hung C. Lin, Professor
Charles Striffler, Assoc. Prof.
Isaak Mayergoyz, Professor

Shih Ho Wang, Assoc. Prof.
Robert Newcomb, Professor
Kawthar Zaki, Assoc. Prof.
Martin Reiser, Professor
Belbas, Asst. Prof.
Leonard Taylor, Professor
Ping-Tong Ho, Asst. Prof.
Edward Ott, Professor
Prakash Narayan, Asst. Prof.
P. S. Krishnaprasad, Assoc. Prof.
Andre Tits, Asst. Prof.
Armand Makowski, Asst. Prof.
E.E. Fthenakis, Adjunct. Professor
W. Namkung, Asst. Prof.
Visvanathan, Asst. Prof.

1984-85

Lee Davisson, Professor and Chair
John Baras, Professor
Yaohuan Chu, Professor
Gilmer Blankenship, Professor
Nicholas DeClaris, Professor
Christopher Davis, Assoc. Prof.
Anthony Ephremides, Professor
William Destler, Assoc. Prof.
Kenneth Galloway, Professor
Fawzi Emad, Assoc. Prof.
Robert O. Harger, Professor
James Pugsley, Assoc. Prof.
Urs E. Hochuli, Professor
Joseph JaJa, Assoc. Prof.
Panos A. Ligomenides, Professor
Charles Silio, Assoc. Prof.

Chi Lee, Professor
David E. Simons, Assoc. Prof.
Williams S. Levine, Professor
Steven Tretter, Assoc. Prof.
Hung C. Lin, Professor
Charles Striffler, Assoc. Prof.
Isaak Mayergoyz, Professor
Shih Ho Wang, Assoc. Prof.
Robert Newcomb, Professor
Kawthar Zaki, Assoc. Prof.
Martin Reiser, Professor
Stavros Belbas, Asst. Prof.
Leonard Taylor, Professor
Ping-Tong Ho, Asst. Prof.
Edward Ott, Professor
Prakash Narayan, Asst. Prof.
Victor Granatstein, Professor
Eyad Abed, Asst. Prof.
P. S. Krishnaprasad, Assoc. Prof.
Andre Tits, Asst. Prof.
Armand Makowski, Asst. Prof.
E.E. Fthenakis, Adjunct. Professor
W. Namkung, Asst. Prof.
Visvanathan, Asst. Prof.
Nariman Favardin, Asst. Prof.
Dimitrios Ioannou, Asst. Prof.
Moon-Jhong Rhee, Professor
Marty Peckerar, Professor

1985-86

Lee Davisson, Professor and Chair
John Baras, Professor
Yaohan Chu, Professor

Gilmer Blankenship, Professor
Nicholas DeClaris, Professor
Christopher Davis, Assoc. Prof.
Anthony Ephremides, Professor
William Destler, Assoc. Prof.
Kenneth Galloway, Professor
Fawzi Emad, Assoc. Prof.
Robert O. Harger, Professor
James Pugsley, Assoc. Prof.
Urs E. Hochuli, Professor
Joseph JaJa, Assoc. Prof.
Panos A. Ligomenides, Professor
Charles Silio, Assoc. Prof.
Chi Lee, Professor
David E. Simons, Assoc. Prof.
Williams S. Levine, Professor
Steven Tretter, Assoc. Prof.
Hung C. Lin, Professor
Charles Striffler, Assoc. Prof.
Isaak Mayergoyz, Professor
Shih Ho Wang, Assoc. Prof.
Robert Newcomb, Professor
Kawthar Zaki, Assoc. Prof.
Martin Reiser, Professor
Thomas Antonsen, Asst. Prof.
Leonard Taylor, Professor
Ping-Tong Ho, Asst. Prof.
Edward Ott, Professor
Prakash Narayan, Asst. Prof.
Victor Granatstein, Professor
Eyad Abed, Asst. Prof.
P. S. Krishnaprasad, Assoc. Prof.
Andre Tits, Asst. Prof.

Armand Makowski, Asst. Prof.
E.E. Ftehenakis, Adjunct. Professor
Kazuo Nakajima, Asst. Prof.
Shihab Shamma, Asst. Prof.
Nariman Favardin, Asst. Prof.
Dimitrios Ioannou, Asst. Prof.
Virgil Gligor, Assoc. Prof.
Kevin Webb, Asst. Prof.
R.M. Owens, Assoc. Prof.
Marty Peckerar, Professor
Moon-Jhong Rhee, Professor

1986-87

William Destler, Professor and Chair
Lee Davisson, Professor
John Baras, Professor
Yaohan Chu, Professor
Gilmer Blankenship, Professor
Nicholas DeClariss, Professor
Christopher Davis, Professor
Anthony Ephremides, Professor
Kenneth Galloway, Professor
Fawzi Emad, Assoc. Prof.
Robert O. Harger, Professor
James Pugsley, Assoc. Prof.
Urs E. Hochuli, Professor
Joseph JaJa, Assoc. Prof.
Panos A. Ligomenides, Professor
Charles Silio, Assoc. Prof.
Chi Lee, Professor
Julius Goldhar, Assoc. Prof.
Williams S. Levine, Professor
Steven Tretter, Assoc. Prof.

Hung C. Lin, Professor
Charles Striffler, Professor
Isaak Mayergoyz, Professor
Evaggelos Geraniotis, Asst. Prof.
Robert Newcomb, Professor
Kawthar Zaki, Assoc. Prof.
Martin Reiser, Professor
Thomas Antonsen, Assoc. Prof.
Leonard Taylor, Professor
Ping-Tong Ho, Asst. Prof.
Edward Ott, Professor
Prakash Narayan, Asst. Prof.
Victor Granatstein, Professor
Eyad Abed, Asst. Prof.
P. S. Krishnaprasad, Assoc. Prof.
Andre Tits, Assoc. Prof.
Armand Makowski, Assoc. Prof.
E.E. Ftehenakis, Adjunct. Professor
Kazuo Nakajima, Asst. Prof.
Shihab Shamma, Asst. Prof.
Nariman Favardin, Asst. Prof.
Dimitrios Ioannou, Asst. Prof.
Virgil Gligor, Assoc. Prof.
Kevin Webb, Asst. Prof.
Moon-Jhong Rhee, Professor
Marty Peckerar, Professor

1987-88

William Destler, Professor and Chair
Lee Davisson, Professor
John Baras, Professor
Yaohan Chu, Professor
Gilmer Blankenship, Professor

Nicholas DeClariss, Professor
Christopher Davis, Professor
Anthony Ephremides, Professor
David Barbe, Professor
Fawzi Emad, Assoc. Prof.
Robert O. Harger, Professor
James Pugsley, Assoc. Prof.
Urs E. Hochuli, Professor
Joseph JaJa, Assoc. Prof.
Panos A. Ligomenides, Professor
Charles Silio, Assoc. Prof.
Chi Lee, Professor
Julius Goldhar, Assoc. Prof.
Williams S. Levine, Professor
Steven Tretter, Assoc. Prof.
Hung C. Lin, Professor
Charles Striffler, Professor
Isaak Mayergoyz, Professor
Evaggelos Geraniotis, Asst. Prof.
Robert Newcomb, Professor
Kawthar Zaki, Assoc. Prof.
Martin Reiser, Professor
Thomas Antonsen, Assoc. Prof.
Leonard Taylor, Professor
Ping-Tong Ho, Assoc. Prof.
Edward Ott, Professor
Prakash Narayan, Asst. Prof.
Victor Granatstein, Professor
Eyad Abed, Asst. Prof.
P. S. Krishnaprasad, Assoc. Prof.
Andre Tits, Assoc. Prof.
Armand Makowski, Assoc. Prof.
Herbert Rabin, Professor

Kazuo Nakajima, Assoc. Prof.
Shihab Shamma, Asst. Prof.
Nariman Favardin, Asst. Prof.
Dimitrios Ioannou, Asst. Prof.
Virgil Gligor, Assoc. Prof.
Kevin Webb, Asst. Prof.
Moon-Jhong Rhee, Professor
Marty Peckerar, Professor
Slaughter, Professor
Mark Shayman, Assoc. Prof.
Agis Iliadis, Asst. Prof.
Mary Beth James, Asst. Prof.

1988-89

William Destler, Professor and Chair
Lee Davisson, Professor
John Baras, Professor
Yaohan Chu, Professor
Gilmer Blankenship, Professor
Nicholas DeClariss, Professor
Christopher Davis, Professor
Anthony Ephremides, Professor
David Barbe, Professor
Fawzi Emad, Professor
Robert O. Harger, Professor
James Pugsley, Assoc. Prof
Urs E. Hochuli, Professor
Joseph JaJa, Professor
Panos A. Ligomenides, Professor
Charles Silio, Assoc. Prof
Chi Lee, Professor
Julius Goldhar, Assoc. Prof.
Williams S. Levine, Professor

Steven Tretter, Assoc. Prof
Hung C. Lin, Professor
Charles Striffler, Professor
Isaak Mayergoyz, Professor
Evangelos Geraniotis, Assoc. Prof
Robert Newcomb, Professor
Kawthar Zaki, Assoc. Prof
Martin Reiser, Professor
Thomas Antonsen, Assoc. Prof
Leonard Taylor, Professor
Ping-Tong Ho, Assoc. Prof
Edward Ott, Professor
Prakash Narayan, Asst. Prof.
Victor Granatstein, Professor
Eyad Abed, Assoc. Prof
P. S. Krishnaprasad, Professor
Andre Tits, Assoc. Professor
Armand Makowski, Assoc. Prof
Herbert Rabin, Professor
Kazuo Nakajima, Assoc. Prof
Shihab Shamma, Asst. Prof.
Nariman Favardin, Asst. Prof.
Dimitrios Ioannou, Asst. Prof.
Virgil Gligor, Assoc. Prof
Kevin Webb, Asst. Prof.
Moon-Jhong Rhee, Professor
Marty Peckerar, Professor
Slaughter, Professor
Mark Shayman, Assoc. Pro
Agis Iliadis, Asst. Prof.
Mary Beth James, Asst. Prof.
Jeffrey Frey, Professor
Mario Dagenais, Assoc. Prof

Thomas Fuja, Asst. Prof.
Howard Milchberg, Asst. Prof.
Adrian Papamarcou, Asst. Prof.

1989-90

William Destler, Professor and Chair
Lee Davisson, Professor
John Baras, Professor
Yaohan Chu, Professor
Gilmer Blankenship, Professor
Nicholas DeClariss, Professor
Christopher Davis, Professor
Anthony Ephremides, Professor
David Barbe, Professor
Fawzi Emad, Professor
Robert O. Harger, Professor
James Pugsley, Assoc. Prof
Urs E. Hochuli, Professor
Joseph JaJa, Professor
Panos A. Ligomenides, Professor
Charles Silio, Assoc. Prof
Chi Lee, Professor
Julius Goldhar, Assoc. Prof.
Williams S. Levine, Professor
Steven Tretter, Assoc. Prof
Hung C. Lin, Professor
Charles Striffler, Professor
Isaak Mayergoyz, Professor
Evangelos Geraniotis, Assoc. Prof
Robert Newcomb, Professor
Kawthar Zaki, Professor
Martin Reiser, Professor
Thomas Antonsen, Assoc. Prof

Leonard Taylor, Professor
Ping-Tong Ho, Assoc. Prof
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Dimitrios Ioannou, Asst. Prof.
Virgil Gligor, Assoc. Prof
Kevin Webb, Asst. Prof.
Moon-Jhong Rhee, Professor
Marty Peckerar, Professor
Yavuz Oruc, Assoc. Prof
Mark Shayman, Assoc. Prof
Agis Iliadis, Asst. Prof.
Neil Goldsman, Asst. Prof.
Jeffrey Frey, Professor
Mario Dagenais, Assoc. Prof
Thomas Fuja, Asst. Prof.
Howard Milchberg, Asst. Prof.
Adrian Papamarcou, Asst. Prof.
Wesley Lawson, Asst. Prof.
Bernard Menezes, Asst. Prof.

1990-91

William Destler, Professor and Chair
Martin Reiser, Professor

Thomas Antonsen, Professor
Moon-Jhong Rhee, Professor
John Baras, Professor
Charles Striffler, Professor
David Barbe, Professor
Leonard Taylor, Professor
Gilmer Blankenship, Professor
Uzi Vishkin, Professor
Yaohan Chu, Professor
Kawthar Zaki, Professor
Christopher Davis, Professor
Eyad Abed, Assoc. Prof.
Lee Davisson, Professor
Mario Dagenais, Assoc. Prof.
Nicholas DeClaris, Professor
Nariman Farvardin, Assoc. Prof.
Fawzi Emad, Professor
Evaggelos Geraniotis, Assoc. Prof.
Anthony Ephremides, Professor
Virgil Gligor, Assoc. Prof.
Jeffrey Frey, Professor
Julius Goldhar, Assoc. Prof.
Victor Granatstein, Professor
Ping-Tong Ho, Assoc. Prof.
Robert O. Harger, Professor
Armand Makowski, Assoc. Prof.
Urs Hochuli, Professor
Kazuo Nakajima, Assoc. Prof.
Joseph JaJa, Professor
Prakash Narayan, Assoc. Prof.
P.S. Krishnaprasad, Professor
Yavuz Oruc, Assoc. Prof.
Chi Lee, Professor

James Pugsley, Assoc. Prof.
William S. Levine, Professor
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Mark Shayman, Assoc. Prof.
Hung C. Lin, Professor
Charles Silio, Assoc. Prof.
Isaak Mayergoyz, Professor
Andre Tits, Assoc. Prof.
Robert Newcomb, Professor
Steven Tretter, Assoc. Prof.
Edward Ott, Professor
Thomas Fuja, Asst. Prof.
Martin Peckerar, Professor
Dayawansa, Asst. Prof.
Herbert Rabin, Professor
Neil Goldsman, Asst. Prof.
Bernard Menezes, Asst. Prof.
Donald Greenberg, Asst. Prof.
Howard Milchberg, Asst. Prof.
Agis Iliadis, Asst. Prof.
Adrian Papamarcou, Asst. Prof.
Dimitrios Ioannou, Asst. Prof.
Kevin Webb, Asst. Prof.
Wesley Lawson, Asst. Prof.
Chia-Hung Yang, Asst. Prof.

1991-92

William Destler, Professor and Chair
Lee Davisson, Professor
John Baras, Professor
Rama Chellappa, Professor
Gilmer Blankenship, Professor,

Nicholas DeClariss, Professor
Christopher Davis, Professor
Anthony Ephremides, Professor
David Barbe, Professor
Fawzi Emad, Professor
Robert Harger, Professor
James Pugsley, Assoc. Prof.
Urs E. Hochuli, Professor
Joseph JaJa, Professor
Panos Ligomenides, Professor
Charles Silio, Assoc. Prof.
Chi Lee, Professor
Julius Goldhar, Assoc. Prof.
William S. Levine, Professor
Steven Tretter, Assoc. Prof.
T. Venky Venkatesan, Professor
Charles Striffler, Professor
Isaak Mayergoyz, Professor
Evangelos Geraniotis, Assoc. Prof.
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Herbert Rabin, Professor

Kazuo Nakajima, Assoc. Prof.
Shihab Shamma, Assoc. Prof.
Favardin, Nariman, Assoc. Prof.
Dimitrios Ioannou, Asst. Prof.
Virgil Gligor, Assoc. Prof.
Uzi Vishkin, Professor
Moon-Jhong Rhee, Professor
Marty Peckerar, Professor
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Howard Milchberg, Asst. Prof.
Adrian Papamarcou, Asst. Prof.
Wesley Lawson, Asst. Prof.
Bernard Menezes, Asst. Prof.
Wijesuriya Dayawansa, Asst. Prof.
Donald Greenberg, Asst. Prof.
Ray Liu, Asst. Prof.
Linda Milor, Asst. Prof.
Chia-Hung Yang, Asst. Prof.

1992-93

William Destler, Professor and Chair
Herbert Rabin, Professor
Thomas Antonsen, Professor
Moon-Jhong Rhee, Professor
John Baras, Professor
Martin Reiser, Professor
David Barbe, Professor

Charles Striffler, Professor
Gilmer Blankenship, Professor
Leonard Taylor, Professor
Rama Chellappa, Professor
Andre Tits, Professor
Mario Dagenais, Professor
T. Venky Venkatesan, Professor
Christopher Davis, Professor
Uzi Vishkin, Professor
Lee Davisson, Professor
Kawthar Zaki, Professor
Nicholas DeClariss, Professor
Eyad Abed, Assoc. Prof.
Fawzi Emad, Professor
Nariman Farvardin, Assoc. Prof.
Anthony Ephremides, Professor
Evangelos Geraniotis, Assoc. Prof.
Jeffrey Frey, Professor
Ping-Tong Ho, Assoc. Prof.
Virgil Gligor, Professor
Agis Iliadis, Assoc. Prof.
Julius Goldhar, Professor
Kazuo Nakajima, Assoc. Prof.
Victor Granatstein, Professor
Prakash Narayan, Assoc. Prof.
Robert Harger, Professor
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James Pugsley, Assoc. Prof.
Joseph Jaja, Professor
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Mark Shayman, Assoc. Prof.

Chi Lee, Professor
Charles Silio, Assoc. Prof.
William Levine, Professor
Steven Tretter, Assoc. Prof.
Panos Ligomenides, Professor
Wijesuriya Dayawansa, Asst. Prof.
Armand Makowski, Professor
Thomas Fuja, Asst. Prof.
Isaak Mayergoyz, Professor
Neil Goldsman, Asst. Prof.
Robert Newcomb, Professor
Donald Greenberg, Asst. Prof.
Edward Ott, Professor
Dimitrios Ioannou, Asst. Prof.
Martin Peckerar, Professor
Wesley Lawson, Asst. Prof.
Howard Milchberg, Asst. Prof.
K. J. Ray Liu, Asst. Prof.
Adrian Papamarcou, Asst. Prof.
Linda Milor, Asst. Prof.
Chia-Hung Yang, Asst. Prof.
Bernard Menezes, Asst. Prof.
Hung C. Lin, Emeritus

1994-95

William Destler, Professor and Chair
Charles Striffler, Professor
Eyad Abed, Professor
Leonard Taylor, Professor
Thomas Antonsen, Professor
Andre Tits, Professor
John Baras, Professor
T. Venky Venkatesan, Professor

David Barbe, Professor
Uzi Vishkin, Professor
Gilmer Blankenship, Professor
Kawthar Zaki, Professor
Rama Chellappa, Professor
Wijesuriya Dayawansa, Assoc. Prof.
Mario Dagenais, Professor
Thomas Fuja, Assoc. Prof.
Christopher Davis, Professor
Neil Goldsman, Assoc. Prof.
Nicholas DeClaris, Professor
Agis Iliadis, Assoc. Prof.
William Destler, Professor
Wesley Lawson, Assoc. Prof.
Fawzi Emad, Professor
Howard Milchberg, Assoc. Prof.
Anthony Ephremides, Professor
Kazuo Nakajima, Assoc. Prof.
Nariman Farvardin, Professor
Prakash Narayan, Assoc. Prof.
Jeffrey Frey, Professor
Yavuz Oruc, Assoc. Prof.
Evangelos Geraniotis, Professor
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Victor Granatstein, Professor
Mark Shayman, Assoc. Prof.
Robert Harger, Professor
Charles Silio, Assoc. Prof.
Ping-Tong Ho, Professor

Steven Tretter, Assoc. Prof.
Joseph Jaja, Professor
Donald Greenberg, Asst. Prof.
P. S. Krishnaprasad, Professor
K. J. Ray Liu, Asst. Prof.
Donald Langenberg, Professor
Linda Milor, Asst. Prof.
Chi Lee, Professor
Chia-Hung Yang, Asst. Prof.
William Levine, Professor
Lee Davisson, Emeritus
Armand Makowski, Professor
Urs Hochuli, Emeritus
Steve Marcus, Professor
Panos Ligomenides, Emeritus
Isaak Mayergoyz, Professor
Hung C. Lin, Emeritus
John Melngailis, Professor
T. C. Gordon Wagner, Emeritus
Robert Newcomb, Professor
Jon Orloff, Professor
Edward Ott, Professor
Martin Peckerar, Professor
Herbert Rabin, Professor
Martin Reiser, Professor
Moon-Jhong Rhee, Professor

1995-96

Nariman Farvardin, Professor and Chair
Wijesuriya Dayawansa, Assoc. Prof.
Eyad Abed, Professor
Neil Goldsman, Assoc. Prof.
Thomas Antonsen, Professor

Agis Iliadis, Assoc. Prof.
John Baras, Professor
Wesley Lawson, Assoc. Prof.
David Barbe, Professor
Howard Milchberg, Assoc. Prof.
Gilmer Blankenship, Professor
Yavuz Oruc, Assoc. Prof.
Rama Chellappa, Professor
Adrian Papamarcou, Assoc. Prof.
Mario Dagenais, Professor
James Pugsley, Assoc. Prof.
Christopher Davis, Professor
Shihab Shamma, Assoc. Prof.
Nicholas DeClariss, Professor
Mark Shayman, Assoc. Prof.
William Destler, Professor & Dean
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Fawzi Emad, Professor
Steven Tretter, Assoc. Prof.
Anthony Ephremides, Professor
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Nariman Farvardin, Professor
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Jeffrey Frey, Professor
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Virgil Gligor, Professor
David Stewart, Asst. Prof.
Julius Goldhar, Professor
Lee Davisson, Emeritus
Victor Granatstein, Professor
Urs E. Hochuli, Emeritus

Robert Harger, Professor
T. C. Gordon Wagner, Emeritus
Ping-Tong Ho, Professor
Hung C. Lin, Emeritus
Joseph JaJa, Professor
P. S. Krishnaprasad, Professor
Donald Langenberg, Professor
Chi Lee, Professor
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Armand Makowski, Professor
Steve Marcus, Professor
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Moon-Jhong Rhee, Professor
Charles Striffler, Professor
Leonard Taylor, Professor
Andre Tits, Professor
T. Venky Venkatesan, Professor
Uzi Vishkin, Professor
Kawthar Zak, Professor

1996-97
Nariman Farvardin, Professor and Chair
Herbert Rabin, Professor
Eyad Abed, Professor

Martin Reiser, Professor
Thomas Antonsen, Professor
Moon-Jhong Rhee, Professor
John Baras, Professor
Shihab Shamma, Professor
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Leandros Tassioulas, Asst. Prof.
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Lee Davisson, Emeritus
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Panos Ligomenides, Emeritus
Prakash Narayan, Professor
Hung C. Lin, Emeritus
Robert Newcomb, Professor
T. C. Gordon Wagner, Emeritus
Jon Orloff, Professor
Yavuz Oruc, Professor
Edward Ott, Professor
Martin Peckerar, Professor

1997-98
Nariman Farvardin, Professor and Chair
Herbert Rabin, Professor
Eyad Abed, Professor
Martin Reiser, Professor
Thomas Antonsen, Professor
Moon-Jhong Rhee, Professor
John Baras, Professor
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T. C. Gordon Wagner, Emeritus
John Melngailis, Professor
Kazuo Nakajima, Professor
Prakash Narayan, Professor
Robert Newcomb, Professor
Jon Orloff, Professor
Yavuz Oruc, Professor
Edward Ott, Professor
Martin Peckerar, Professor

1998-99

Nariman Farvardin, Professor and Chair
Herbert Rabin, Professor
Eyad Abed, Professor
Martin Reiser, Professor
Thomas Antonsen, Professor
Moon-Jhong Rhee, Professor
John Baras, Professor
Shihab Shamma, Professor
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Chi Lee, Professor
Shuvra Bhattacharyya, Asst. Prof.
Wesley Lawson, Professor
Jerome Gansman, Asst. Prof.
William Levine, Professor
Lee Davisson, Emeritus
Armand Makowski, Professor
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Panos Ligomenides, Emeritus
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Leonard Taylor, Emeritus
Kazuo Nakajima, Professor
T. C. Gordon Wagner, Emeritus
Prakash Narayan, Professor
Bruce Jacob, Asst. Prof.
Robert Newcomb, Professor

Donald Yeung, Asst. Prof
Jon Orloff, Professor
Yavuz Oruc, Professor
Edward Ott, Professor
Martin Peckerar, Professor

1999-00

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Eyad Abed, Professor
Martin Reiser, Emeritus
Thomas Antonsen, Professor
Moon-Jhong Rhee, Professor
John Baras, Professor
Shihab Shamma, Professor
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Mario Dagenais, Professor
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Uzi Vishkin, Professor
Nicholas DeClaris, Professor
Kawthar Zaki, Professor
William Destler, Professor & Dean
Babis Papadopoulos, Asst. Prof.
Fawzi Emad, Professor
Neil Goldsman, Assoc. Prof.
Anthony Ephremides, Professor
Agis Iliadis, Assoc. Prof.

Jeffrey Frey, Professor
K. J. Ray Liu, Assoc. Prof
Evangelos Geraniotis, Professor
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James Pugsley, Emeritus
Julius Goldhar, Professor
Charles Silio, Assoc. Prof
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Robert Harger, Professor
Leandros Tassioulas, Assoc. Prof.
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Chia-Hung Yang, Assoc. Prof.
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Leonard Taylor, Emeritus
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Prakash Narayan, Professor
Bruce Jacob, Asst. Prof
Robert Newcomb, Professor
Donald Yeung, Asst. Prof
Jon Orloff, Professor
Patrick O'Shea, Professor
Yavuz Oruc, Professor
Edward Ott, Professor
Martin Peckerar, Professor

2000-01

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Eyad Abed, Professor
Herbert Rabin, Professor
Thomas Antonsen, Professor
Moon-Jhong Rhee, Professor
John Baras, Professor
Shihab Shamma, Professor
David Barbe, Professor
Mark Shayman, Professor
Gilmer Blankenship, Professor
Charles Striffler, Professor
Rama Chellappa, Professor
Andre Tits, Professor
Mario Dagenais, Professor
T. Venky Venkatesan, Professor
Christopher Davis, Professor
Uzi Vishkin, Professor
Nicholas DeClaric, Professor
Kawthar Zaki, Professor

William Destler, Professor & Dean
Rajeev Barua, Asst. Prof
Neil Goldsman, Professor
Martin Reiser, Emeritus
Anthony Ephremides, Professor
James Pugsley, Emeritus
Jeffrey Frey, Professor
Lee Davisson, Emeritus
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Panos Ligomenides, Emeritus
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Wesley Lawson, Professor
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William Levine, Professor
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Armand Makowski, Professor
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Steve Marcus, Professor
Patrick O'Shea, Assoc. Prof.
Isaak Mayergoyz, Professor
Agis Iliadis, Assoc. Prof.
John Melngailis, Professor
K. J. Ray Liu, Assoc. Prof.
Kazuo Nakajima, Professor
Adrian Papamarcou, Assoc. Prof.
Prakash Narayan, Professor
Charles Silio, Assoc. Prof.
Robert Newcomb, Professor
Steven Tretter, Assoc. Prof.
Jon Orloff, Professor
Leandros Tassioulas, Assoc. Prof.
Yavuz Oruc, Professor
Chia-Hung Yang, Professor
Edward Ott, Professor
Robert Harger, Emeritus
Martin Peckerar, Professor
Manoj Franklin, Asst. Prof
Reza Ghodssi, Asst. Prof

2001-02

Steve Marcus, Professor and Chair
Isaak Mayergoyz, Professor
Eyad Abed, Professor
John Melngailis, Professor
Thomas Antonsen, Professor
Kazuo Nakajima, Professor
John Baras, Professor
Prakash Narayan, Professor
David Barbe, Professor
Robert Newcomb, Professor

Gilmer Blankenship, Professor
Jon Orloff, Professor
Rama Chellappa, Professor
Yavuz Oruc, Professor
Mario Dagenais, Professor
Edward Ott, Professor
Christopher Davis, Professor
Martin Peckerar, Professor
Nicholas DeClaris, Professor
Herbert Rabin, Professor
William Destler, Professor & Provost
Moon-Jhong Rhee, Professor
Anthony Ephremides, Professor
Shihab Shamma, Professor
Nariman Farvardin, Professor & Dean
Mark Shayman, Professor
Evangelos Gerniotis, Professor
Andre Tits, Professor
Virgil Gligor, Professor
T. Venky Venkatesan, Professor
Julius Goldhar, Professor
Uzi Vishkin, Professor
Neil Goldsman, Professor
Chia-Hung Yang, Professor
Victor Granatstein, Professor
Kawthar Zaki, Professor
Ping-Tong Ho, Professor
Agis Iliadis, Assoc. Prof.
Joseph Jaja, Professor
Patrick O'Shea, Assoc. Prof.
P. S. Krishnaprasad, Professor
Adrian Papamarcou, Assoc. Prof.
Donald Langenberg, Professor

Charles Silio, Assoc. Prof.
Wesley Lawson, Professor
Leandros Tassioulas, Assoc. Prof.
Chi Lee, Professor
Steven Tretter, Assoc. Prof.
William Levine, Professor
Chia-Hung Yang, Assoc. Prof.
K. J. Ray Liu, Professor
Rajeev Barua, Asst. Prof.
Armand Makowski, Professor
Shuvra Bhattacharyya, Asst. Prof.
Romel Gomez, Asst Prof.
Manoj Franklin, Asst. Prof.
Timothy Horiuchi, Asst Prof.
Gansman, Asst. Prof.
Bruce Jacob, Asst. Prof.
Reza Ghodssi, Asst. Prof.
Babis Papadopoulos, Asst. Prof.
Gang Qu, Asst Prof
Jonathan Z. Simon, Asst Prof.
Donald Yeung, Asst. Prof.
Lee Davisson, Emeritus
Fawzi Emad, Emeritus
Robert Harger, Emeritus
Urs Hochuli, Emeritus
Panos Ligomenides, Emeritus
Hung C. Lin, Emeritus
James Pugsley, Emeritus
Martin Reiser, Emeritus
Leonard Taylor, Emeritus
T. C. Gordon Wagner, Emeritus

2002-03

Steve Marcus, Professor and Chair
Shuvra Bhattacharyya, Assoc. Prof.
Eyad Abed, Professor
Carol Espy-Wilson, Assoc. Prof.
Thomas Antonsen, Professor
Ralph Etienne-Cummings, Assoc. Prof.
John Baras, Professor
Manoj Franklin, Assoc. Prof.
David Barbe, Professor
Romel Gomez, Assoc. Prof.
Gilmer Blankenship, Professor
Agis Iliadis, Assoc. Prof.
Rama Chellappa, Professor
Patrick O'Shea, Assoc. Prof.
Mario Dagenais, Professor
Adrian Papamarcou, Assoc. Prof.
Christopher Davis, Professor
Charles Silio, Assoc. Prof.
Nicholas DeClariss, Professor
Leandros Tassioulas, Assoc. Prof.
William Destler, Professor & Provost
Steven Tretter, Assoc. Prof.
Anthony Ephremides, Professor
Pamela Abshire, Asst. Prof.
Nariman Farvardin, Professor & Dean
Rajeev Barua, Asst. Prof.
Virgil Gligor, Professor
Jerome Gansman, Asst. Prof.
Julius Goldhar, Professor
Reza Ghodssi, Asst. Prof.
Neil Goldsman, Professor
Timothy Horiuchi, Asst. Prof.

Victor Granatstein, Professor
Bruce Jacob, Asst. Prof.
Ping-Tong Ho, Professor
Richard La, Asst. Prof.
Joseph JaJa, Professor
Babis Papadopoulos, Asst. Prof.
P. S. Krishnaprasad, Professor
Gang Qu, Asst. Prof.
Donald Langenberg, Professor
Jonathan Z. Simon, Asst. Prof.
Wesley Lawson, Professor
Sennur Ulukus, Asst. Prof.
Chi Lee, Professor
Min Wu, Asst. Prof.
William Levine, Professor
Donald Yeung, Asst. Prof.
K. J. Ray Liu, Professor
Lee Davisson, Emeritus
Armand Makowski, Professor
Fawzi Emad, Emeritus
Isaak Mayergoyz, Professor
Robert Harger, Emeritus
John Melngailis, Professor
Urs E. Hochuli, Emeritus
Howard Milchberg, Professor
Panos Ligomenides, Emeritus
Kazuo Nakajima, Professor
Hung C. Lin, Emeritus
Prakash Narayan, Professor
James Pugsley, Emeritus
Robert Newcomb, Professor
Martin Reiser, Emeritus
Jon Orloff, Professor

Charles Striffler, Emeritus
Yavuz Oruc, Professor
Leonard Taylor, Emeritus
Edward Ott, Professor
T. C. Gordon Wagner, Emeritus
Martin Peckerar, Professor
Andre Tits, Professor
Herbert Rabin, Professor
T. Venky Venkatesan, Professor
Moon-Jhong Rhee, Professor
Uzi Vishkin, Professor
Shihab Shamma, Professor
Chia-Hung Yang, Professor
Mark Shayman, Professor
Kawthar Zaki, Professor

2003-04

Steve Marcus, Professor and Chair
Shuvra Bhattacharyya, Assoc. Prof.
Eyad Abed, Professor
Carol Espy-Wilson, Assoc. Prof.
Thomas Antonsen, Professor
Ralph Etienne-Cummings, Assoc. Prof.
John Baras, Professor
Manoj Franklin, Assoc. Prof.
David Barbe, Professor
Romel Gomez, Assoc. Prof.
Gilmer Blankenship, Professor
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Virgil Gligor, Professor
Gansman, Asst. Prof.
Julius Goldhar, Professor
Reza Ghodssi, Asst. Prof.
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Sennur Ulukus, Asst. Prof.
Chi Lee, Professor
Min Wu, Asst. Prof.
William Levine, Professor
Donald Yeung, Asst. Prof.
K. J. Ray Liu, Professor

Lee Davisson, Emeritus
Armand Makowski, Professor
Fawzi Emad, Emeritus
Isaak Mayergoyz, Professor
Robert Harger, Emeritus
John Melngailis, Professor
Panos Ligomenides, Emeritus
Howard Milchberg, Professor
Hung C. Lin, Emeritus
Kazuo Nakajima, Professor
James Pugsley, Emeritus
Prakash Narayan, Professor
Martin Reiser, Emeritus
Robert Newcomb, Professor
Charles Striffler, Emeritus
Jon Orloff, Professor
Leonard Taylor, Emeritus
Yavuz Oruc, Professor
T. C. Gordon Wagner, Emeritus
Edward Ott, Professor
Andre Tits, Professor
Martin Peckerar, Professor
Ankur Srivastava, Asst. Prof.
Herbert Rabin, Professor
Uzi Vishkin, Professor
Moon-Jhong Rhee, Professor
Chia-Hung Yang, Professor
Shihab Shamma, Professor
Kawthar Zaki, Professor
Mark Shayman, Professor

2004-05
Steve Marcus, Professor and Chair

Andre Tits, Professor
Eyad Abed, Professor
Uzi Vishkin, Professor
Thomas Antonsen, Professor
Chia-Hung Yang, Professor
John Baras, Professor
Kawthar Zaki, Professor
David Barbe, Professor
Shuvra Bhattacharyya, Assoc. Prof.
Gilmer Blankenship, Professor
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Kazuo Nakajima, Professor
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Prakash Narayan, Professor
Lee Davisson, Emeritus
Robert Newcomb, Professor
Fawzi Emad, Emeritus
Jon Orloff, Professor
Robert Harger, Emeritus
Yavuz Oruc, Professor
Panos Ligomenides, Emeritus

Edward Ott, Professor
Hung C. Lin, Emeritus
Martin Peckerar, Professor
James Pugsley, Emeritus
Herbert Rabin, Professor
Martin Reiser, Emeritus
Moon-Jhong Rhee, Professor
Charles Striffler, Emeritus
Shihab Shamma, Professor
Leonard Taylor, Emeritus
Mark Shayman, Professor
T. C. Gordon Wagner, Emeritus

2005-06

Patrick O'Shea, Professor and Chair
Shuvra Bhattacharyya, Assoc. Prof.
Eyad Abed, Professor
Carol Espy-Wilson, Assoc. Prof.
Thomas Antonsen, Professor
Manoj Franklin, Assoc. Prof.
John Baras, Professor
Romel Gomez, Assoc. Prof.
David Barbe, Professor
Bruce Jacob, Assoc. Prof.
Alexander Barg, Professor
Adrian Papamarcou, Assoc. Prof.
Gilmer Blankenship, Professor
Charles Silio, Assoc. Prof.
Rama Chellappa, Professor
Steven Tretter, Assoc. Prof.
Mario Dagenais, Professor
Donald Yeung, Assoc. Prof.
Christopher Davis, Professor

Pamela Abshire, Asst. Prof.
Nicholas DeClaris, Professor
Rajeev Barua, Asst. Prof.
William Destler, Professor & Provost
Reza Ghodssi, Asst. Prof.
Anthony Ephremides, Professor
Timothy Horiuchi, Asst. Prof.
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Richard La, Asst. Prof.
Virgil Gligor, Professor
Thomas E. Murphy, Asst. Prof.
Julius Goldhar, Professor
Babis Papadopoulos, Asst. Prof.
Neil Goldsman, Professor
Peter Petrov, Asst. Prof.
Victor Granatstein, Professor
Gang Qu, Asst. Prof.
Ping-Tong Ho, Professor
Jonathan Z. Simon, Asst. Prof.
Joseph JaJa, Professor
Ankur Srivastava, Asst. Prof.
Agis Iliadis, Professor
Sennur Ulukus, Asst. Prof.
Min Wu, Asst. Prof.
P. S. Krishnaprasad, Professor
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Fawzi Emad, Emeritus
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William Levine, Professor
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K. J. Ray Liu, Professor

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Isaak Mayergoyz, Professor
Martin Reiser, Emeritus
John Melngailis, Professor
Charles Striffler, Emeritus
Howard Milchberg, Professor
Leonard Taylor, Emeritus
Kazuo Nakajima, Professor
T. C. Gordon Wagner, Emeritus
Prakash Narayan, Professor
Chi Lee, Emeritus
Steve Marcus, Professor
Robert Newcomb, Professor
Jon Orloff, Professor
Yavuz Oruc, Professor
Edward Ott, Professor
Martin Peckerar, Professor
Herbert Rabin, Professor
Moon-Jhong Rhee, Professor
Shihab Shamma, Professor
Mark Shayman, Professor
Andre Tits, Professor
Uzi Vishkin, Professor
Chia-Hung Yang, Professor
Kawthar Zaki, Professor

2006-07

Patrick O'Shea, Professor and Chair
Shuvra Bhattacharyya, Assoc. Prof.
Eyad Abed, Professor
Carol Espy-Wilson, Assoc. Prof.

Thomas Antonsen, Professor
Manoj Franklin, Assoc. Prof.
John Baras, Professor
Reza Ghodssi, Assoc. Prof.
David Barbe, Professor
Romel Gomez, Assoc. Prof.
Alexander Barg, Professor
Bruce Jacob, Assoc. Prof.
Gilmer Blankenship, Professor
Timothy Horiuchi, Assoc. Prof.
Rama Chellappa, Professor
Adrian Papamarcou, Assoc. Prof.
Mario Dagenais, Professor
Charles Silio, Assoc. Prof.
Christopher Davis, Professor
Steven Tretter, Assoc. Prof.
Nicholas DeClaris, Professor
Donald Yeung, Assoc. Prof.
William Destler, Professor & Provost
Pamela Abshire, Asst. Prof.
Anthony Ephremides, Professor
Rajeev Barua, Asst. Prof.
Nariman Farvardin, Professor & Dean
Richard La, Asst. Prof.
Virgil Gligor, Professor
Nuno Martins, Asst. Prof.
Julius Goldhar, Professor
Thomas E. Murphy, Asst. Prof.
Neil Goldsman, Professor
Peter Petrov, Asst. Prof.
Victor Granatstein, Professor
Gang Qu, Asst. Prof.
Ping-Tong Ho, Professor

Jonathan Z. Simon, Asst. Prof.
Joseph JaJa, Professor
Ankur Srivastava, Asst. Prof.
Agis Iliadis, Professor
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Joseph JaJa, Professor
Min Wu, Asst. Prof.
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William Levine, Professor
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K. J. Ray Liu, Professor
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Steve Marcus, Professor
James Pugsley, Emeritus
Isaak Mayergoyz, Professor
Martin Reiser, Emeritus
John Melngailis, Professor
Charles Striffler, Emeritus
Howard Milchberg, Professor
Leonard Taylor, Emeritus
Kazuo Nakajima, Professor
T. C. Gordon Wagner, Emeritus
Prakash Narayan, Professor
Chi Lee, Emeritus
Robert Newcomb, Professor
Moon-Jhong Rhee, Professor Emeritus
Jon Orloff, Professor
Yavuz Oruc, Professor

Edward Ott, Professor
Martin Peckerar, Professor
Herbert Rabin, Professor
Shihab Shamma, Professor
Mark Shayman, Professor
Andre Tits, Professor
Uzi Vishkin, Professor
Chia-Hung Yang, Professor
Kawthar Zaki, Professor

2007-08

Patrick O'Shea, Professor and Chair
Rajeev Barua, Assoc. Prof
Eyad Abed, Professor
Carol Espy-Wilson, Assoc. Prof
Thomas Antonsen, Professor
Reza Ghodssi, Assoc. Prof
John Baras, Professor
Timothy Horiuchi, Assoc. Prof.
David Barbe, Professor
Bruce Jacob, Assoc. Prof.
Alexander Barg, Professor
Richard La, Assoc. Prof.
Shuvra Bhattacharyya, Professor
Adrian Papamarcou, Assoc. Prof.
Gilmer Blankenship, Professor
Gang Qu, Assoc. Prof.
Rama Chellappa, Professor
Charles Silio, Assoc. Prof.
Martin Reiser, Emeritus

Nicholas DeClaris, Professor
Steven Tretter, Assoc. Prof.
Mario Dagenais, Professor
Sennur Ulukus, Assoc. Prof.
Christopher Davis, Professor
Min Wu, Assoc. Prof
Donald Yeung, Assoc. Prof
Anthony Ephremides, Professor
Pamela Abshire, Asst. Prof
Nariman Farvardin, Professor & Provost
Nuno Martins, Asst. Professor
Manoj Franklin, Professor
Thomas E. Murphy, Asst. Prof
Virgil Gligor, Professor
Peter Petrov, Asst. Prof.
Julius Goldhar, Professor
Kris Rosfjord, Asst. Prof.
Neil Goldsman, Professor
Jonathan Simon, Asst. Prof.
Romel Gomez, Professor
Ankur Srivastava, Asst. Prof.
Victor Granatstein, Professor
Edo Waks, Asst. Prof.
Ping-Tong Ho, Professor
Lee Davisson, Emeritus
Agis Iliadis, Professor
Fawzi Emad, Emeritus
Joseph Jaja, Professor
Robert Harger, Emeritus
P. S. Krishnaprasad, Professor

Chi Lee, Emeritus
Wesley Lawson, Professor
Panos Ligomenides, Emeritus
William Levine, Professor
Hung C. Lin, Emeritus
K. J. Ray Liu, Professor
Jon Orloff, Emeritus
Armand Makowski, Professor
James Pugsley, Emeritus
Steve Marcus, Professor
E. Reisner, Emeritus
Isaak Mayergoyz, Professor
Moon-Jhong Rhee, Emeritus
John Melngailis, Professor
Charles Striffler, Emeritus
Howard Milchberg, Professor
Leonard Taylor, Professor Emeritus
Kazuo Nakajima, Professor
Kawthar Zaki, Professor Emeritus
Prakash Narayan, Professor
Robert Newcomb, Professor
Yavuz Oruc, Professor
Edward Ott, Professor
Martin Peckerar, Professor
Herbert Rabin, Professor & Interim Dean
Shihab Shamma, Professor
Mark Shayman, Professor
Andre Tits, Professor
Uzi Vishkin, Professor
Chia-Hung Yang, Professor



IX. ECE Alumni of Note

A List of Distinguished Alumni Award Winners, 1994 Clark School Centennial Medalists, Innovation Hall of Fame Inductees, and University of Maryland 150 Notable Alumni

Dr. James S. Albus

Clark School Centennial Medalist

Ph.D. Electrical Engineering, 1972 – UMD

B.S., Physics, 1957 – Wheaton College

M.S. Electrical Engineering, 1958 – Ohio State

Dr. James S. Albus began his career at the National Institute of Standards of Technology (NIST) in 1973, a year after he had received his Ph. D. from the University of Maryland, when the company was then the National Bureau of Standards. Prior to his career at NIST, Albus worked for NASA where he was awarded the Outstanding Invention Award for the invention of the digital solar aspect sensor. This sensor was used on more than 20 NASA spacecrafts. He is also recognized for co-creating a standard model of cerebellar function, the Marr-Albus Theory of the Cerebellum, which is a leading hypothesis in the neurosciences and the basis of experimental activity in this area, throughout the world. In 1984, Albus was awarded the Joseph D. Engelberger Award by the Robot Industries Association, for the development of a theory of hierarchical control for robots and intelligent machines.

Dr. Walter R. Beam

Clark School Centennial Medalist

B.S., Electrical Engineering, 1947 – UMD

M.S., Electrical Engineering, 1950 – UMD

Ph. D., Electrical Engineering, 1953 – UMD

Dr. Walter R. Beam devoted his education to the University of Maryland, Electrical Engineering Department. He received all three degrees from the University and then joined the faculty as an instructor for the department. He was the first to receive a Ph. D. from Electrical Engineering at the University of Maryland. Beam later became a faculty member at Rensselaer Polytechnic Institute and George Mason University. He, also, pursued careers at RCA, IBM, and Sperry and served as deputy for Advanced Technology in the Office of the Secretary of the U.S. Air Force. The U.S. Air Force presented him with the highest civilian decoration—twice—The Decoration for Exceptional Civilian Service. He was a fellow of the Institute of Electrical and Electronics Engineers, serving as a chair or member of numerous committees and also was a member of the College of Engineering's Board of Visitors.

Angel Bezos

Clark School Centennial Medalist, Innovation Hall of Fame

B.S., Electrical Engineering, 1969 - UMD

Angel Bezos is the co-founder of Pulse Electronics, a company involved in the design and development of innovative and commercially successful products for the railroad industry. He was awarded more than 15 U.S. Patents, which includes the self-powered end-of-train unit and a fuel measuring system. He and Emilio Fernandez were the 1994 Inductees to the College's Engineering Innovation Hall of Fame.

Dr. Nathan Bluzer

Innovation Hall of Fame

B.S., Electrical Engineering, 1969 - UMD

Ph.D., Solid State Physics, 1969 - UMD

Bluzer received a B.S. in Electrical Engineering, with honors, and

a Ph.D. in Solid State Physics from the University of Maryland. He also studied superconductivity at Stanford University and taught at the Johns Hopkins University. He is a Senior Advisory Physicist at the Westinghouse Advanced Technology Center where, for over 20 years, he formulated innovative practical device structures to extend the performance of electronic systems. Using his broad technical background, Bluzer has played key technical and leadership roles in research and development programs on micro-electronic devices such as: infrared sensors, visible sensors, radiation hard electronics, cryogenic focal plane multiplexers, charge-coupled devices, and superconducting multispectral sensors. He has published over 40 scientific papers, written over 120 invention disclosures, and applied for and been granted 31 U.S. patents. Bluzer was elected to Tau Beta Pi and Eta Kappa Nu. He is a Fellow of the Institute for Electrical and Electronics Engineers and a life member of the American Physical Society. For “contributions to infrared image sensors and heterojunction diode detectors,” he was recognized by the Maryland Academy of Sciences as the 1990 Outstanding Young Engineer in the State of Maryland.

Asidai Bodharamik

UMD 150 Notable Alumni

B.S., Chulalongkorn University, 1962

M.S., University of Hawaii, 1967

Ph.D., Electrical Engineering, 1971

Dr. Asidai Bodharamik has served as an elected member of the Thai Senate and Thailand’s Education Minister, and is the founder and chair of the Jasmine Group in the telecommunications industry. He is described by former provost, William Destler, as “a wonderful example of entrepreneurial leadership and [...] an inspiration to

both students and faculty.” The Jasmine International Group has been named among the leading telecommunications companies in the world. Bodharamik was inducted into the University of Maryland Hall of Fame.

Kenneth D. Brody

Clark School Centennial Medalist, UMD 150 Notable Alumni

B. S., Electrical Engineering, 1964 – UMD

M.B.A., Harvard University

Kenneth Brody was selected by President Clinton and confirmed by the U.S. Senate in 1993 to head the Export-Import Bank, a federal agency that facilitates and aids in financing exports of U.S. goods and services. He also serves as deputy chair of the Trade Promotion Coordinating Committee. From 1971-1991, Brody served as a member of the Goldman-Sachs investment banking firm for 20 years. He was elected a general partner of the firm in 1978 and a member of its management committee in 1990. President Clinton also appointed him as a member of the Board of Governors of the American Red Cross. Brody is also a co-founder of Taconic Capital Advisors, LLC, an investment firm focused on event investing. He served on the board of directors of: Quest Diagnostics Incorporated, Alex Brown Incorporated, Federal Realty Investment Trust, and Telerate Incorporated. He has also served as the chair of the investment committee of the University of Maryland, and has been a member of the Council on Foreign Relations.

Dr. S. Joseph Campanella

Clark School Centennial Medalist

M.S., Electrical Engineering, 1956 – UMD

B.S., Electrical Engineering, 1950 – Catholic University

Ph.D., Electrical Engineering, 1965 – Catholic University

Dr. S. Joseph Campanella is a recognized expert in and contributor to digital satellite communications technology. He has contributed enabling concepts that are fundamental to the digital technologies now used in the international communications satellite systems. He served for 14 years as Vice President of R&D for Melpar Incorporated and in 1993, Campanella retired as vice president and chief scientist of COMSAT laboratories, after serving there for 25 years. He is a fellow of the Institute of Electrical and Electronics Engineers and an associate fellow of the American Institute for Aeronautics and Astronautics. He is the author of many publications and holds 10 patents. Campanella holds the 1990 IEEE Behn Award in International Communications. He is also an inductee in the Clark School's Innovation Hall of Fame at the University of Maryland.

Robert S. Caruthers

Innovation Hall of Fame

B.S., Electrical Engineering, 1926 – UMD

M.S., Electrical Engineering, 1928 – MIT

Robert Surguy Caruthers was inducted into the Clark School's Innovation Hall of Fame in recognition of significant contributions to the field of multiplexing and long-distance telephony. He received the Bachelor of Science in Electrical Engineering from the University of Maryland at College Park in 1926 and received a master's degree in electrical engineering in 1928 from MIT. In the decades before and after World War II, he participated in most of the major wire and cable communications developments in the Bell System, contributing fundamental improvements in electronic methods and circuitry. During his long career, he worked for Bell Telephone Laboratories, GTE, and ITT. He was awarded 25 patents, several of which were critical to trunk line

telephone system development. He served on various international technical committees and was a consultant to Mexican and Japanese communications organizations. He received the Goddard Medal from NASA for work related to a satellite communications system, was elected a Fellow of the IRE (which later became the Institute of Electrical and Electronic Engineers), and was a member of Tau Beta Pi, Phi Kappa Phi, and Telephone Pioneers of America.

Dr. Soo Young Chang

UMD 150 Notable Alumni

M.S., Electrical Engineering, 1968 – UMD

Ph.D., Electrical Engineering, 1971 – UMD

Former President of Pohang University of Science and Technology in South Korea.

Michael A. Comberiate

Clark School Centennial Medalist

B.S., Electrical Engineering, 1969 – UMD

M.S., Electrical Engineering, 1971 – UMD

Michael Comberiate served as an engineer and senior program manager with NASA after his graduation from the University of Maryland. He has designed and built electronics for NASA spacecraft that has been to the moon and beyond. He has been responsible for initiating historic milestones in Antarctica involving satellite communications technology, just as the First Pole-to-Pole Phone call.

Larry Davis

Clark School Centennial Medalist

B.S., Electrical Engineering, 1975 – UMD

M.S., Electrical Engineering 1983 – Naval Postgraduate School

Larry Davis worked with Naval Air Systems Command and the Naval Air Test Center until 1985, when he joined Motorola. He was directly responsible for the acquisition, management, and profit and loss of key development and production programs that stress Motorola core technical competencies and include voice coding/data compression, information security, and communication security programs. Davis has received many awards, such as the 1990 Motorola Network Leadership Award, the 1991 National Black Engineer of the Year Award for Community Service, and was nominated for the 1993 Award for Volunteerism.

James E. Dingman

Distinguished Engineering Alumnus Award

B.S., Electrical Engineering, 1921

James E. Dingman, a Distinguished Engineering Alumnus Award Recipient in 1969, was the Executive Vice-President of AT&T. He played a key role in the birth of satellite communications as chief engineer at AT&T. He retired in 1966 as vice chairman of the company. His 44-year career started in telecommunications in 1922 as an equipment tester in Philadelphia for the Western Electric Company, the Bell system's manufacturing and supply arm. He also played an instrumental role in the development of the Telstar satellite. He oversaw the first telecast beamed into space and back to Earth with an experimental satellite transmission to Telstar from Maine in 1962. From 1964 to 1973, Dingman was a director of ComSat, the Communications Satellite Corporation set up by Congress.

Gordon England

Distinguished Alumni Award, UMD 150 Notable Alumni

B.S., Electrical Engineering, 1961

M.B.A., Texas Christian University, 1975

Gordon England is the 29th Deputy Secretary of Defense. He previously served as the 72nd and 73rd Secretary of the Navy, and as the first Deputy Secretary of the Department of Homeland Security. His career spanned over 40 years as an engineer and senior executive, prior to joining the administration of President George W. Bush. The start of his business career began at Honeywell in 1966, as an engineer on the Project Gemini space program. He worked for Litton Industries as a program manager and was also a CEO of GRE Consultants. England has served as President of the General Dynamics Fort Worth Aircraft Company, President of the General Dynamics Land Systems Company, and as corporate Executive Vice President of General Dynamics Information Systems and Technology Sector, Ground Combat Systems Sector and the International Sector. England has received awards and recognition from many organizations: The Distinguished Alumni Award from the University of Maryland; the Department of Defense Distinguished Public Service Award; the Silver Knight of Management Award from the National Management Association; the Henry M. Jackson Award; and the IEEE Centennial Award.

H. Joseph Engle

Clark School Centennial Medalist

B. S., Electrical Engineering, 1962 – UMD

M.B.S., 1979 – Loyola College

H. Joseph Engle had a distinguished and progressively responsible career with more than 25 years of experience in engineering and management positions with AlliedSignal Technical Services Corporation, and from 1989-1994 served as the chairman of the board and president. He was responsible for more than \$180 million worth of business with the Department of Defense and NASA programs. He was active in community relations programs,

serving as a member of the Board of Governors of the National Space Club and a member of the U.S. Space Foundation.

Patricia C. Fennell

Clark School Centennial Medalist

B.S., Electrical Engineering, 1984 – UMD

Patricia C. Fennell began her career with Hewlett Packard in 1983, as a summer intern. In 1985, she became a full-time staff engineer. Since 1986, Fennell has provided Test and Measurement products to companies throughout Maryland and Virginia, including her Alma Mater.

Emilio A. Fernandez

Clark School Centennial Medalist, Distinguished Engineering Alumnus Award, Innovation Hall of Fame

B.S., Electrical Engineering, 1969 – UMD

M.S., Engineering Administration, 1976 – George Washington University

In 1977, Emilio A. Fernandez co-founded Pulse Electronics, which has been restructured and renamed the Pulse Group. The company is involved with fields ranging from transportation products to medical instruments. George Washington University has awarded Fernandez in 1982 with the Engineer Alumni Achievement Award and in 1988, with the Distinguished Alumni Achievement Award. The same day he addressed the 1994 graduating class, Fernandez was inducted to the Clark School's Innovation Hall of Fame in 1994 with EE Alum, Angel Bezos. Fernandez has served on the A. James Clark School of Engineering Board of Visitors since 1996 and is on the University of Maryland, College Park Foundation Board of Trustees. He received the Distinguished Engineering Alumnus Award in 2007.

Charles Fink

Clark School Centennial Medalist

B.S., Electrical Engineering, 1951 – UMD

Charles Fink began his career as an Electrical Engineer at Maryland Electronic Corporation, prior to its becoming the AMECOM division of Litton Industries. In 1975, he became President of AMECOM. Fink holds 6 patents related to electronic warfare – antennas, direction finding and receiving systems, which served as the basis for much of AMECOM's early growth. In 1983, Fink was promoted to corporate vice president and group executive, Electronic Warfare Systems Group of Litton Industries. In 1988, left Litton to become corporate vice president and general manager of the Defense Systems Group for the FMC Corporation, where he stayed until his retirement in 1990. He was chair and member of the College of Engineering's Board of Visitors.

Louis F. Flagg

Clark School Centennial Medalist

B.S., Electrical Engineering, 1936 – UMD

Louis F. Flagg retired from a long career with Honeywell in 1984. After his time at Honeywell, he devoted a great deal of time to the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE). From 1985-1989, Flagg served successively as treasurer, vice president, president-elect, and then president of ASHRAE and serves as a trustee of the ASHRAE Foundation

Raymond W. Godman

Clark School Centennial Medalist

B.S., Electrical Engineering, 1960 – UMD

M.S., Engineering Administration – George Washington Univ.

Raymond W. Godman began his career at Vitro Laboratories working on Polaris and Poseidon weapon systems before moving to the U.S. Navy as chief analyst and deputy branch head for a group responsible for systems analysis of Navy tactical forces. Since 1977, Godman held a variety of positions with TRW including general manager of the Huntsville, Alabama site, manager of Command Projects, and VP and assistant manager of Information Systems Operation. He has been responsible for acceptance, transportation, and storage of spent reactor fuel and high-level radioactive waste.

James H. Harlow

Distinguished Engineering Alumnus Award

B.S., Electrical Engineering, 1933

James H. Harlow received the Distinguished Engineering Alumnus Award in 1968. He served as CEO of Philadelphia Electric Co.

R. Reed Harrison III

Clark School Centennial Medalist

B.S., Electrical Engineering, 1971 – UMD

M.S., Management, 1981 – Pace University

Following his grandfather and father, Harrison joined C&P Telephone of MD in 1971 and over the next 7 years held a variety of engineering and operations assignment. In 1978, he moved to AT&T Corporate Headquarters and was then involved in the Bell System divestiture. Harrison joined the AT&T Network Systems Group in 1984 and became head of a customer business unit with responsibility for software-based systems used by phone companies around the world, serving as Executive Director and RBOC Operations Systems VP.

Dr. Norris C. Hekimian

Clark School Centennial Medalist

M.S. Electrical Engineering, 1951 – UMD

Ph.D., Electrical Engineering, 1969 – UMD

B.S., Electrical Engineering, 1949 – George Washington University

Dr. Norris C. Hekimian established Hekimian Laboratories in 1968 after working for the federal government and in private industry for more than 20 years. He retired in 1990 after 22 years of building the company from one that produced stand-alone analog test equipment to one that is involved in modular systems that help telephone companies detect and solve problems in their networks. Hekimian holds approximately two dozen patents and has served on the George Washington University Board of Trustees.

Brian L. Hinman

Distinguished Engineering Alumnus Award, UMD 150

Notable Alumni

B.S., Electrical Engineering, 1982 – UMD

M.S., Electrical Engineering – MIT

Brian L. Hinman is the president, CEO and co-founder of 2Wire, a provider of broadband service platforms for the DSL market. 2Wire's suite of solutions offers DSL providers an integrated "triple-play" of data, voice, and media services. Hinman is also the co-founder, and formerly the CEO, of Polycom, Inc., the world's leading teleconferencing company. Hinman co-founded PictureTel Corporation at the age of 22, and was vice president of engineering and a director from 1984 through 1990. Hinman, an engineer by training, is a specialist in digital signal processing and holds twelve U.S. patents. As one of the nation's most successful young entrepreneurs, he was honored by the Association of Collegiate Entrepreneurs three different

times. He is on the Board of Visitors of both the Massachusetts Institute of Technology and the University of Maryland's Clark School of Engineering; a trustee of the University of Maryland Foundation; and the sponsor of the Hinman CEOs (Campus Entrepreneurship Opportunities) Program at the University of Maryland. He has previously served on the national board of the American Electronic Association, and was co-founder and director of the International Multimedia Teleconferencing Consortium. Hinman holds a bachelor's degree (summa cum laude) in electrical engineering from the University of Maryland, and a Masters in electrical engineering from M.I.T. He is also an inductee of the Clark School's Innovation Hall of Fame.

Wallace J. Hoff

Clark School Centennial Medalist

M.S., Electrical Engineering, 1970 – UMD

B.S., Electrical Engineering, 1960 – South Dakota State Univ.

Wallace J. Hoff has worked with Westinghouse since 1960. As VP and General Manager for Systems Development and Operations, he has been responsible for integrating development and design engineering with manufacturing operations to assure synergy throughout all engineering processes from initial product development through final production. Hoff is a senior member of the IEEE.

George J. Laurer

Clark School Centennial Medalist, UMD 150 Notable Alumni, Innovation Hall of Fame

B.S., Electrical Engineering, 1951 – UMD

George J. Laurer was a career employee of IBM for more than 35 years and received approximately 25 patents during his tenure

with the company. His best known invention is the standard form of the Universal Product Code (UPC), the scannable code found on items in grocery stores. Laurer has received IBM's Raleigh's Inventor of the Year Award and the Technical Achievement Award and in 1991, he was inducted into the College's Innovation Hall of Fame.

Dr. Rajiv Laroia

Innovation Hall of Fame

M.S., Electrical Engineering, 1992 – UMD

Ph.D., Electrical Engineering, 1992 – UMD

Dr. Rajiv Laroia has made outstanding contributions to the theory and practice of wireline and wireless communications systems. Born in Pune, India, in 1962, he received his M.S. and Ph.D. degrees from Maryland in electrical engineering in 1989 and 1992, respectively. Dr. Laroia's innovations helped to nearly double the speed of data transmission over voiceband telephone channels. These technologies are included in all such modems sold since 1998. Specifically, he developed new precoding and constellation shaping methods for voiceband telephone line modems. Dr. Laroia's discoveries came to light shortly after he completed his Ph.D. At that time, his work was presented to Penril Datacomm. Penril and most other modem manufacturers chose Dr. Laroia's technology recommendations over those from AT&T and Motorola. Penril has since been bought out by Bay Networks, which was in turn bought by Nortel. After earning his Ph.D., Dr. Laroia went to work at the Mathematical Sciences Research Center of Lucent Technologies' Bell Labs. His work there dealt with broadband wireless systems for data communications. He became head of Bell Labs' Digital Communications Research Department in its Wireless Research Center in 1997. It is there

that Dr. Laroia co-invented a spread spectrum technique for a wireless data systems called FLASH-ODFM, a system unique in its basis on Internet IP protocols—a base station acts as a router that connects mobile phones with modem cards to the Internet. This technology is being tested by a number of major telecommunications companies in the United States and abroad. Lucent spun off Dr. Laroia's research group in 2000, creating Flarion Technologies, with Dr. Laroia as founder and CTO. Flarion was purchased by Qualcomm in 2005, leading Dr. Laroia into the role of CTO for Qualcomm's Orthogonal Frequency Division Multiple Access (OFDMA) Division. Dr. Laroia holds 29 patents. He is a Fellow of the Institute of Electrical and Electronics Engineers.

Brian Legette

UMD 150 Notable Alumni

B.S., Electrical Engineering, 1989 – UMD

Co-Founder of Big Bang Products, now known as 180s LLC, performance gear for cold-weather sports; best known for its hip earwarmers.

Ram Makunda

Distinguished Engineering Alumnus Award

B.S., Electrical Engineering and Mathematics, 1979 – UMD

M.S., Electrical Engineering, 1981 – UMD

Ram Mukunda has served as Chief Executive Officer, President and a Director India Globalization Capital, Inc. since 2005. Mukunda also served as Chief Executive Officer of Integrated Global Networks, LLC, a communications contractor for the U.S. government. Makunda founded Startec Global Communications, an international telecommunications carrier focused on providing

voice over Internet protocol (VOIP) services to the emerging economies, and served as Chairman and Chief Executive Officer from January 1990 to May 2004. In 1998, he was named Greater Washington Entrepreneur of the Year in the communications category. He earned all of his degrees at Maryland, including B.S. degrees in both electrical engineering and mathematics, as well as an M.S. degree in electrical engineering.

Dr. F. William Nesline, Jr.

Clark School Centennial Medalist

B.S., Electrical Engineering, 1951 – UMD

M.E., Yale University

Ph. D., Yale University

Dr. F. William Nesline, Jr. retired in 1992 as the chief systems engineer of the Missile System Division of Raytheon Company. During his career at Raytheon, he directed its part of the Apollo program and developed a multivariable autopilot to reduce substantially the response time for the Patriot missile against high speed targets. Nesline received Raytheon's Excellence in Technology Award and their Most Distinguished Author's Award. He was also a fellow of the American Institute of Astronautics and Aeronautics and senior member of the IEEE.

Fred W. O'Green

Clark School Centennial Medalist, Distinguished Engineering Alumnus Award

M.S., Electrical Engineering, 1949 – UMD

B.S., Electrical Engineering, 1943 – Iowa State University

Fred W. O'Green pursued a job as a civilian at the Naval Ordinance Laboratories in Washington right out of college, in 1943, while also pursuing his M.S. degree at the University of

Maryland. Thirteen years later, O'Green took a job as technical director of space programs at Lockheed Corporation, where he was credited with helping to accelerate the United States Space Program during the competitive times with the Soviet Union. He then joined Litton in 1962 as general manager of the Guidance and Control Systems division. In 1972, he was elected president and chief operating officer of Litton and then assumed additional responsibilities of chief executive officer and chairman of the board in 1981. O'Green retired from the company in 1988, but remained chairman of the executive committee of Litton's Board of Directors until 1993. Prior to Litton, O'Green was technical director of space programs and assistant general manager at Lockheed's space division. He was involved in accelerating the U.S. space program after Sputnik I. O'Green has received the Distinguished Engineering Alumnus Award from the University of Maryland and an honorary juris doctorate from Pepperdine University. In 1974, Iowa State University awarded him a Distinguished Achievement Citation and in 1980, he was named Energy Executive of the Year by the Association of Energy Engineers. A year later, the University of Maryland College of Engineering presented O'Green with a Distinguished Engineering Alumni Award.

Dr. Y. C. (Buno) Pati

Distinguished Engineering Alumnus Award
B.S., Electrical Engineering, 1986 – UMD
M.S., Electrical Engineering, 1988 – UMD
Ph.D., Electrical Engineering, 1992 – UMD

Y.C. Buno Pati is a co-founder and chief executive officer of Sezmi. Pati is an experienced and successful entrepreneur who has an established track record of building numerous early-

stage companies into successful businesses. Prior to co-founding Sezmi, Pati was an angel investor and board member and on occasion, interim chief executive officer of early-stage venture-funded technology companies in a range of markets from semiconductors to video compression and multimedia services. Pati founded Numerical Technologies and served as its president and chief executive officer. He led Numerical from the initial development phases, through its successful initial public offering to its acquisition by Synopsys. Before co-founding Numerical, Pati served as assistant professor of electrical engineering and computer science at Harvard University and a post-doctoral research associate at Stanford University. Pati serves on the board of directors and is an early investor in several venture-funded technology companies. Past and present board positions include, Innovative Silicon, Pulsic, Fliptrack, Xoomsys and Brion. Pati also serves on several boards for the University of Maryland including; the Board of Trustees, Board of Visitors for the College of Engineering, the President's West Coast Advisory Council, and is a co-chair of the Scholarship Endowment Fund campaign. He serves on the IT Advisory Board of Index Ventures and the Advisory Board of Nexus India Capital. He holds a 1992 Ph.D. in electrical engineering, with focus on wireless communications and signal processing from the University of Maryland. He was advised by P.S. Krishnaprasad. He received the Clark School of Engineering 2003 Distinguished Alumnus Award for his contributions to the field of engineering and the advancement of technology.

Dr. R. David Pittle

Clark School Centennial Medalist
B.S., Electrical Engineering, 1963 – UMD
M.S., Electrical Engineering, 1965 – University of Wisconsin

Ph. D., Electrical Engineering, 1969 – University of Wisconsin
Dr. R. David Pittle began his career as an instructor at the University of Wisconsin from 1963 to 1969. He then taught at Carnegie-Mellon University until 1972. Pittle was appointed by Pres. Nixon and Carter as Commissioner of the U.S. Consumer Product Safety Commission, serving from 1973-1982 and joined the Consumers Union in 1982 where he has served as VP, supervising the nation's largest consumer testing laboratory and ensuring the accuracy and objectivity of their assistance to consumers. He is well known as a life-long consumer advocate, dedicating his career to the advancement of consumer interests and product safety. Pittle received the Philip Hart Public Service Award and the Federal Executive Boards Award for Outstanding Public Service in Consumer Protection.

James L. Redifer

Clark School Centennial Medalist

B.S., Electrical Engineering, 1958 – UMD

M.S., Electrical Engineering, 1971 – UMD

James L. Redifer was responsible for the design of all products at the BWI site of the Electronic Systems division. He joined Westinghouse in 1970 and gained extensive experience in the management of both large software and hardware systems. In 1986, he was appointed manager of the Advanced Sensor Programs Department in the Space Division, a position he held until promotion to his current position in 1989. Redifer served on the Engineering Advisory Committee for the Reliability Engineering Program at the University of Maryland and was Westinghouse's corporate coordinator to the University. He also represented Westinghouse on the Engineering Council of the Manufacturers Alliance for Productivity and Innovation.

Dr. Judith Resnik

Distinguished Engineering Alumnus Award, UMD 150

Notable Alumni

B.S., Electrical Engineering, 1970 – Carnegie-Mellon University

Ph.D., Electrical Engineering, 1977 – UMD

Judith Resnik joined America's astronaut program in 1978, a year after receiving her doctorate in electrical engineering from Maryland. Previously, she had worked as a design engineer at RCA and Xerox Corporation and studied the physiology of human sight at the National Institutes of Health. Resnik became America's second female astronaut in space in 1984. She contributed to the space program through experimental software development and worked on the shuttle's remote manipulator system. In 1986, Resnik and six crewmates died aboard the space shuttle Challenger. To honor her pioneering spirit, the university established the Judith A. Resnik Memorial Scholarship and Fellowship Endowment. She is also a Distinguished Engineering Alumnus Award Recipient, 1985. She was a member of the IEEE, American Association for the Advancement of Science, IEEE Committee on Professional Opportunities for Women, American Association of University Women, and American Institute of Aeronautics and Astronautics.

Harry B. Smith

Clark School Centennial Medalist, Distinguished Engineering Alumnus, Award, UMD 150 Notable Alumni, Innovation Hall of Fame

B.S., Electrical Engineering, 1942 – University of Missouri- Rolla

M.S., Electrical Engineering, 1949 – UMD

Harry B. Smith retired in 1986 as president of Westinghouse Defense and Electronics Center. He began his career at the Naval

Research Laboratory, and after stints with the army and Davies Laboratories, joined Westinghouse in 1952. He was awarded 15 U.S. patents and was the inventor of pulse Doppler radar, for which he received the Institute of Electrical and Electronics Engineers David Sarnoff and Pioneer Awards. He was a fellow of IEEE and received the 1982 Distinguished Engineering Alumnus Award from the University of Maryland. Smith was then inducted into the Engineering Innovation Hall of Fame at the University of MD in 1987. He passed away in August, 2008.

Dr. William B. Smith

Clark School Centennial Medalist

B.S., Electrical Engineering, 1962 – UMD

M.S., Electrical Engineering – Princeton University

Ph.D., Computer Science – University of Pennsylvania

William B. Smith began his career in 1962 with AT&T Bell Laboratories, after graduating from the University of Maryland at the age of 18. From 1982 to 1986, he served as vice president and general technical director for ITT Europe. He returned to AT&T, as the executive director of the Communications Services Network Division. Smith also served as the President and CEO of Telco Systems, Inc. He was responsible for the company's turnaround, increasing the company's annual revenue from \$90 million to \$120 million, and then successfully negotiated acquisition of the company by World Access, Inc.

John Stuntz

Clark School Centennial Medalist, Distinguished Engineering Alumnus Award

B.S., Electrical Engineering, 1947 – UMD

M.S., Electrical Engineering, 1950 – UMD

John Stuntz retired from a long career with Westinghouse Electric Corporation as executive president of the Defense and Electronics Center in 1983. He had joined Westinghouse in 1952 as a senior engineer in the aerospace division. During his 31 years with the company, Stuntz played key engineering and management roles in the innovations of many significant new defense and space systems. In 1973, he was awarded the Westinghouse Order of Merit, the highest award of the company. He also received the Distinguished Engineering Alumnus Award in 1974 from the University of Maryland and served as Chair on the College's Engineering Advisory Council from 1979-1983.

C. Franklin Wheatley, Jr.

Clark School Centennial Medalist, Innovation Hall of Fame

B.S., Electrical Engineering, 1951 – UMD

C. Franklin Wheatley, Jr. had an industrial career in semiconductor devices spanning 40 years with RCA, GE Solid State, and Harris Semiconductor. He has been awarded 49 patents. Wheatley's most significant contribution was his co-invention of the Insulated Gate Bipolar Transistor (IGBT), the first "merged" bipolar/MOSFET device to find widespread use in power and motion control. He was also elected Fellow of IEEE in 1991. He was also inducted into the Clark School's Innovation Hall of Fame for pioneering developments in solid state circuits and devices, including the invention of the IGBT.

W. Robert Wilson

Clark School Centennial Medalist, Distinguished Engineering Alumnus Award

B.S., Electrical Engineering, 1949 – UMD

M.B.A., University of Chicago, 1970

W. Robert Wilson retired in 1992 as chairman and chief executive officer of Lukens, Inc., a holding company with subsidiaries producing steel plate and plate products, materials-handling equipment and supplies, glass bead, and highway safety products. Prior to joining Lukens in 1980, Wilson had been with Inland, and rose from a test engineer in 1949 to senior vice president of engineering and corporate planning. Wilson has served as a member of the College of Engineering's Board of Visitors and received the Distinguished Engineering Alumnus Award in 1990.

Phil Wisner

Distinguished Engineering Alumnus Award

B.S., Electrical Engineering, 1990 – UMD

M.S., Electrical Engineering, 1993 – Stanford University

Philip R. Wisner is President and Chairman of Sezmi, a new home entertainment technology and services company based in Silicon Valley. Prior to starting Sezmi, Wisner served as Chief Technology Officer of Sony Corporation of America (SCA). In this role, Wisner led Sony's overall technology strategy and was responsible for coordinating technology initiatives and growing digital opportunities for Sony, including efforts in mobile entertainment.

Prior to joining Sony Music, Mr. Wisner co-founded Liquid Audio, Inc., in 1996 and served on its Board of Directors and as Chief Technology Officer of the Company through June 2001. He has also worked in key industry standard groups such as MPEG, SDMI, and AES to accelerate the adoption of networked technologies for media distribution. Prior to Liquid Audio, Mr. Wisner worked extensively in the Silicon Valley. During this time he developed audio algorithms and audio processing systems for several professional and consumer audio organizations. He directed audio compression work at Chromatic Research, a multimedia semiconductor device company. He also served as director of digital signal processing research for Studer Editech Corporation, a professional audio recording equipment company. Prior to that, he developed audio software systems for Sonic Solutions and Euphonix, both developers of professional digital audio products. Mr. Wisner holds a summa cum laude B.S. in electrical engineering from the University of Maryland and a M.S. in electrical engineering from Stanford University in 1993. He spent time at the world-renowned Center for Computer Research in Music and Acoustics (CCRMA) during his tenure at Stanford.



X. Current Electrical and Computer Engineering (ECE) Department Snapshot

- Full Time Professors: 67
- Research Faculty and Postdocs: 50
- Emeritus Professors: 13
- Affiliate Professors: 19
- Undergraduate Student Enrollment: 650
- Incoming Undergraduate Freshmen SAT Average: 1401
- Incoming Undergraduate Freshmen GPA Average: 4.082
- Annual B.S. Degrees Awarded: 175
- M.S. Student Enrollment: 85
- Ph.D. Student Enrollment: 325
- Acceptance Rate of Graduate Applicants: 13.6%
- Annual M.S. Degrees Awarded: 54
- Annual Ph.D. Degrees Awarded: 45
- Annual Department Research Expenditures: \$37 Million

- *U.S. News and World Report* Best Graduate Schools Rankings (2009):
 - Electrical Engineering ranked 14th overall, 7th among public universities, and 1st among public universities in the Mid-Atlantic and Northeast
 - Computer Engineering 16th overall, 8th among public universities, and 1st among public universities in the Mid-Atlantic and Northeast
 - College of Engineering ranked 17th overall, 10th among public universities, and 2nd among all East Coast public engineering programs

- *U.S. News and World Report* Undergraduate Rankings (2009):
 - College of Engineering ranked 21st overall, 8th among public universities
 - University of Maryland Entrepreneurship Programs ranked 9th overall

ECE Advisory Board Membership:

Geoffrey L. Barrows
Founder & CEO, Centeye, Inc.

Bill Bennett
Principal Engineer, Planning Systems
BAE Systems Advanced Information Technologies

Jeff Bernstein
Co-Founder, 2Wire, Inc.

Doug Bishop
Vice President & CTO, Engineering and IT
Thales Communications, Inc.

James Bodycomb
Vice President, Switching Product Management (Retired)
Lucent Technologies

Tag Cutchis
Senior Engineer
Johns Hopkins University Applied Physics Laboratory

Charles Franklin
Vice President, Compliance
CTI Consultants

Sonjai Gupta
Strategic Investment Manager
Sprint Nextel Ventures

Jim Howland
Director, Signal Processing Center
MITRE

P.R. Kumar
Professor of Electrical & Computer Engineering
University of Illinois

Rajiv Laroia
CTO, QUALCOMM Flarion Technologies

Patrick McCusker
Principal, Dulaney High School

Benjamin A. Pontano
President, Comsat Laboratories (Retired)

Ranjan K. Sen
Academic Relations Manager, Education Solutions
Microsoft Corporation

Laurie Villano
Vice President, Booz Allen Hamilton

Milan Vlajnic
ECE Advisory Board President
Chief Technology Officer, Vice President, Engineering & Operations
ComTek Communication Technologies, Inc.

Philip Wiser
Chairman & President, Sezmi

William E. Witowsky
Senior Fellow, Texas Instruments



XI. Electrical and Computer Engineering (ECE) Centennial Weekend

September 26-27, 2008, University of Maryland Campus, College Park, Md.

Program Schedule:

Friday, September 26, 2008

ECE Centennial Reception
University of Maryland Golf Course Clubhouse, 6:00 - 9:30 p.m.

Saturday, September 27, 2008

ECE Centennial Forum Events & Luncheon
Jeong H. Kim Engineering Building, 10:00 a.m. - 3:30 p.m.
Featuring leading experts in Energy, Information Systems, and Communications

Centennial Forum #1: “The Future of Information Systems & Communications”
Lecture Hall, Rm. 1110, 10:00 a.m.

Moderator: **Nariman Farvardin**, Senior VP for Academic Affairs & Provost, University of Md.

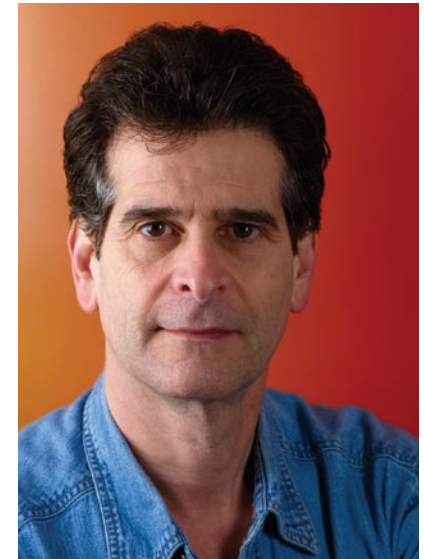
Panelists:

Victor Bahl, Principal Researcher, Microsoft Corp.

Michael Brown (B.S., CS, '92), Executive VP, comScore

Douglas Himberger, VP, Booz Allen Hamilton

Rajiv Laroia, (Ph.D., EE, '92), CTO, Qualcomm Flarion Technologies



Dean Kamen

ECE Centennial Luncheon

Kim Rotunda, 12:00 - 1:30 p.m.

Speaker: **William E. Kirwan**, Chancellor, University System of Maryland

Centennial Forum #2: "The Future of Energy"

Lecture Hall, Rm. 1110, 1:45 p.m.

Moderator: **H. Frederick Dylla**, Executive Director & CEO, American Institute of Physics

Panelists:

David Goodstein, Professor & Former Vice Provost, Cal. Tech.

Larry Kazmerski, Director, Photovoltaics, Natl. Renewable Energy Lab (NREL)

Joseph Turnage, Senior VP, Constellation Energy

Steven Cowley, Director, Culham Science Center, UK, Professor, UCLA

Robotics Demonstration

Jeong H. Kim Building Plaza, 3:30 p.m. - 4:30 p.m.

Students from Robotics@Maryland and participants in the 2008 Autonomous Robot Speedway Competition, as well as Eleanor Roosevelt High School robotics students engaged in Dean Kamen's FIRST Foundation program, will demonstrate their robots for Centennial guests outside, directly in front of the Jeong H. Kim Engineering Building on the Kim Plaza.

Centennial Gala and Dinner

Samuel Riggs IV Alumni Center, 6:00 p.m. - 9:30 p.m.

Keynote Speaker:

Dean Kamen, Inventor, DEKA Research & Founder, FIRST Foundation



ECE Historical Timeline



ECE Historical Timeline

Maryland Agricultural College is chartered

1856



1856 Maryland Agricultural College receives charter, opens for students in College Park in 1859

1894 The Engineering School is established

1908 The Electrical Engineering (EE) curriculum is developed and introduced as a field of study

1908 A new engineering building is erected contiguous to the original mechanical engineering shop unit, and all three engineering departments — civil, electrical, and mechanical — are adequately housed for the first time. The Engineering Building, later renamed Taliaferro Hall, started as a 2-story brick building

1909 A brick addition to the engineering building consisted of a main building, four stories in height and a wing three stories in height, arranged to form a concrete whole with the building previously erected. In this group of buildings are laboratories of various kinds, wood and machine shops, a forge room and foundry, drawing rooms and blue print rooms, instrument rooms, lecture rooms, offices, a library room, lavatories, etc.

1912 September 1912, the Engineering Society is first organized

U.S. Civil War Ends

1865



1914-1915 The cost per term for a laboratory class in EE is .75 cents for Sophomores, and \$1.00 for Juniors and Seniors

1916 Maryland Agricultural College is renamed the Maryland State College of Agriculture

1917 Maryland State College becomes Co-Educational

1917-1918 Many faculty, officers, and students leave campus to fight in World War I

1921 Institution is officially established as the University of Maryland

1921 From the Course Catalog: “Beginning with the college year of 1921, it is expected to have the curriculum so arranged as to prescribe the same courses of study for all freshmen and all sophomores, respectively, in the Engineering College. Among other advantages that will accrue from such a change, is the very important one that a young man will not be called upon to decide the brand of engineering in which he will specialize until his junior year.”

1923 Phi Mu established at University of Maryland. The Maryland Chapter of Tau Beta Pi, the Engineering Honors Society, began its existence in 1923 as Phi Mu, then became Tau Beta Pi in 1929.

Engineering School established

1894



1926 First Master's Degree awarded in EE – Howard Redford Aldridge, B.S. Eng. '25

1928 Evelyn B. Harrison is the first woman to be admitted to engineering and graduated in 1932 with a B.S. in Civil Engineering

1929 Tau Beta Pi Honorary Engineering Fraternity officially established in 1929. The organization was originally founded at Lehigh University in 1885.

1930 Tau Beta Pi receives their charter

1936 American Institute of Electrical Engineers (AIEE), precursor to IEEE, founded in 1884, local branch organized in 1936

1936 The Engineer's Council for Professional Development (ECPD), later to become Accreditation Board for Engineering and Technology (ABET), visited the Departments of Electrical, Civil, and Mechanical Engineering during the administration of Dean Steinberg to examine the three departments' curricula. All three departments were accredited, and have been ever since.

1940 AIEE membership offered to sophomores for the first time; previously only extended to Juniors and Seniors

Electrical Engineering program

1908



Timeline: 1856 - 1958

Engineering
established

1858

University of
Maryland established

1921

Glenn L. Martin
donates major gift

1944

Eta Kappa Nu
receives charter

1958

1940 College of Engineering moved from Taliaferro Hall and a shed-like building to Shoemaker Hall (now known as H. J. Patterson Hall)

1942 George Corcoran is hired from Iowa State University to become Department Head of Electrical Engineering

1944 President Harry "Curly" Byrd persuades Glenn L. Martin to donate \$2,500,000 to the College of Engineering; \$2,300,000 to be used for construction of the engineering building; \$200,000 was set aside for aeronautical research

1945 Byrd announces architectural competition for design of new engineering building

1946 Due to World War II, the entire EE junior class in 1946 consists of only one 17-year-old student — Walter R. Beam, who would later become the first EE Ph.D. graduate. When the veterans return from WWII, each has to have a slide rule for classes. There are so many of them that lost or abandoned slide rules could be found all around the campus.

1947 Judge Cole's Memorandum re: architectural situation on the engineering building

1947 Glenn L. Martin is inducted into the Maryland Beta Chapter of Tau Beta Pi.

1948/1949 Course Catalog says that the college will be known as the Glenn L. Martin College of Engineering and Aeronautical Sciences by late September 1949

1949 AIEE merges with Institute of Radio Engineers (IRE), established in 1912; later becomes the Institute of Electrical and Electronics Engineers (IEEE) in 1963

1949 The College of Engineering becomes the Glenn L. Martin College of Engineering and Aeronautical Sciences, officially introduced at the University of Maryland in July of 1949, and the new buildings are occupied for the first time. The new units consist of four buildings: General Engineering Building (Classroom Building), an Engineering Laboratories Building, a Chemical Engineering Building, and a Wind Tunnel Building

1949 Wind Tunnel begins operations in May of '49. The \$1,258,512 tunnel has maximum speed of 300mph with a 2250 horsepower motor.

1950 Official opening of new Glenn L. Martin College and Wind Tunnel

1950 Engineering college establishes an Institute for Technological Research to engage in full time research

1953 First Ph.D. student in EE graduates — Walter Beam

1954 Mr. Martin donates an additional \$339,000 as an aeronautical endowment in memory of his mother, Mrs. Minta Martin. During his lifetime, Martin gave \$2.83 million, and left an additional \$2.1 to the university in his will

1955 Glenn L. Martin dies in December 1955. In his will, Mr. Martin left \$2,000,000 to the Minta Martin Aeronautical Research Foundation

1955 The Glenn L. Martin College of Engineering and Aeronautical Sciences becomes the Glenn L. Martin Institute of Technology on March 25, 1955

1957 EE Honor Society, Eta Kappa Nu, formed in 1956; awaits an official chapter

1958 Eta Kappa Nu receives its charter in 1957. Maryland EE alumnus Dr. Walter R. Beam, then at RCA Laboratories, gave the formal address at the initial meeting of the University of Maryland Eta Kappa Nu chapter.

ECE Historical Timeline

Nuclear reactor established on campus

1960

New engineering “Co-Op Plan” introduced

1969

Engineering Research Center is established

1969

1960 Nuclear reactor first operational on campus

1962 In September 1962, the College introduces an independent closed circuit television system for students of engineering science. “Characterized by a live audience and a device permitting a hook-up with a movie camera, and the prospect of a special ear phone set for lecturer-classroom communication, this new television system promises to continue the College’s development and progress.”

1962 Glenn L. Martin Institute introduces its first digital computer, the IBM 1620

1963 Two women — engineering seniors Annette C. Evans and Joan E. Roderick — were given badges at the Fall Initiation Banquet. Women were not permitted full membership in Tau Beta Pi

1969 A “Co-Op Plan,” which combines classroom study with professional work in the field, is scheduled to begin this summer. The plan will add Maryland to the list of some 50 top engineering colleges in the U.S. that already have this program. The five-year degree program will be offered to third-year students mainly in the mechanical and electrical engineering areas, because these two have the largest enrollments at the time.

1983 Engineering Research Center is established

1984 EE Alumna Judy Resnick chosen for the space shuttle Challenger mission

1984 A branch of the college of engineering is established at University of Maryland Baltimore Campus (UMBC)

1985 A \$16 million grant is obtained from the National Science Foundation for the establishment of the Systems Research Center (SRC), later renamed the Institute for Systems Research. SRC was one of six centers established that year in a new NSF program to develop engineering centers of excellence at universities. The effort was led by EE Prof. John Baras.

1986 The space shuttle Challenger explodes 74 seconds after liftoff due to a faulty O-ring, killing all seven astronauts on board, including alumna Judy Resnick.

1987 The Engineering Innovation Hall of Fame is established by the College of Engineering. Its objective is to recognize truly great engineering innovation achieved by alumni or faculty. The first recipients are: James A. Clark, Glenn L. Martin, Harry B. Smith, and John E. Younger.

1987 GE funds \$50,000 in scholarships to support graduate students in computer sciences and engineering who plan careers in higher education. University of Maryland was one of only five U.S. Universities to receive such a grant.

1988 The A.V. Williams Building, the future home of EE, is constructed in 1988

1988 Maryland General Assembly officially designated University of Maryland, College Park, as the “flagship campus”

1989 Dean George Dieter inaugurated Advanced Workstation Laboratory: SOLARIUM-I (Sun Open Laboratory for Advanced Research and Instruction, University of MD). First of its kind in the college, offering public access to an advanced UNIX system environment. Lab includes 20 SUN work stations with 10 color and 10 monochrome monitors.

1990 During the summer of 1990, ground is broken for the second phase of the new A.V. Williams Building. The EE Department is to move to the A.V. Williams Building in January of 1992, under the leadership of Dr William Destler, Chairman of the EE Department.

1992 In the summer of 1992, the EE Department moves into the new wing of the A.V. Williams Building, which provides about 42,000 sq. ft of new space for the department and enables the faculty to be in the same location for the first time in many years.

1992 Systems Research Center became The Institute for Systems Research (ISR). ISR is a global leader and innovator in the integrated design for control of complex engineering systems. It was founded in 1985 as a National Science Foundation Engineering Research Center, and is now a permanent institution of the Univ. of MD. Many EE faculty serve as affiliate ISR faculty members.

1993 The M.S. in Telecommunications Program is established. The program was supported by Digital

Timeline: 1958-2008

A.V. Williams
Building constructed
1988

College of Engineering
Centennial
1994

Computer Engineering
program established
1997

Jeong H. Kim
Building dedicated
2005

Equipment Corporation, Bell Atlantic, and MCI. First offered in the fall semester of 1993, with 19 students enrolled in the program.

1994 100th Anniversary Celebration for the College of Engineering

1994 EE Newsletter, Connections, is started, publishing bi-annually. The faculty coordinator is Andre Tits.

1994 The first edition of the EE Department's home page on the World Wide Web is launched, coordinated by Prof. Moon-Jhong Rhee.

1994 The EE Industrial Affiliates Program is introduced under Nariman Farvardin. The goal of this program is to strengthen the ties between companies and the EE Department. The program is coordinated by Prof. Gil Blankenship.

1994 The Women in Engineering program is established through a grant from the Alfred P. Sloan Foundation. The first director is Cheryl G. Morris.

1994 Electrical Engineering Graduate Student Association (later renamed Electrical and Computer Engineering Graduate Student Association, ECEGSA) founded by David Bader, Ph.D. '96, who serves as the group's first President.

1995 On May 19th, Dean Dieter graciously accepts a \$15 million gift from alumnus A. James Clark, resulting in the renaming of Maryland's

College of Engineering to the A. James Clark School of Engineering. At the time, it marked the largest gift University of Maryland ever received.

1995 First 21 individuals are inducted into the University of Maryland Alumni Hall of Fame in April 1995. Five of them are from Engineering.

1996 The Gemstone Program is created by Dean of Engineering William Destler. The Gemstone Program is a 4-year program in which teams of undergraduate honors students examine practical, real-world problems in science and technology.

1997 B.S. Degree Program in Computer Engineering established in Fall 1997. The new degree is offered jointly by the EE Department and Computer Science Department.

1998 Jeong H. Kim gives \$5,000,000, the second largest gift ever received by the College of Engineering.

1998 The Engineering Classroom Building is officially renamed Glenn L. Martin Hall in December 1998.

1998 President C.D. Mote holds first ever Maryland Day event at College Park, opening up the campus for a day of fun and activities for the local community, families, and prospective students and parents.

1999 Chancellor Donald N. Langenberg writes to President C.D. Mote and approves the change of the department name from the Department of Electrical

Engineering to the Department of Electrical and Computer Engineering.

2000 ECE Chairman Nariman Farvardin is appointed Dean of the Clark School of Engineering. Prof. Steve Marcus, former Director of ISR, is appointed Chairman of the ECE Department.

2005 Prof. Patrick O'Shea, former Director of the Institute of Research in Electronics and Applied Physics (IREAP), succeeds Prof. Steve Marcus as Chairman of the ECE Department.

2005 The dedication of the new Jeong H. Kim Engineering Building is held on September 19, 2005. It is the first building on campus to be named after an Asian-American. Kim, an alumnus in reliability engineering and ECE professor of practice who currently serves as President of Bell Labs, is named one of the top 10 most influential Asian Americans in Business.

2006 The Clark School is ranked among the top ten public engineering programs in the U.S. by the *U.S. News and World Report's* Best Graduate Schools publication, which ranks the Clark School 15th in the nation and 9th among all public universities. Maryland's Electrical Engineering program is ranked 13th in the nation, 7th among public universities, and 1st among all public universities in the Northeast and Mid-Atlantic, while the Computer Engineering program is ranked 16th in the nation, 9th among public universities, and 1st among all public universities in the Northeast and Mid-Atlantic.

CELEBRATING THE 100TH ANNIVERSARY OF THE
ELECTRICAL AND COMPUTER ENGINEERING DEPARTMENT
AT THE
UNIVERSITY OF MARYLAND
1908-2008

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