

## Salam Al-Sabah



### Profession

Chartered Structural Engineer

### Current Position

Research Fellow, School of Civil Engineering, UCD  
Associate, Arup

### Qualifications

B.Sc. Civil Engineering  
University of Baghdad, Iraq

M.Sc. Structural Engineering  
University of Baghdad, Iraq

Ph.D. Structural Engineering, University College Dublin, Ireland

### Professional Associations

Fellow, Engineers Ireland  
Chartered Member,  
Institution of Structural Engineers

Dr Al-Sabah has dual academic and professional engineering careers. In addition to his work as a Research Fellow in the Urban Modelling Group-UCD, he continues to work in the field of structural design both in Ireland and other parts of the world as an associate in one of the leading international engineering consultancies (Arup). His current research is on a new steel connection. He is also carrying out research on in the automation of structural design process and developing a new method for the non-linear analysis of concrete structures. Dr Al-Sabah professional engineering work is focused on the structural design of challenging structures and elements. Significant projects in Ireland include the Bord Gáis Energy Theatre, Sean O'Casey Bridge, and the new Air traffic control tower at Dublin Airport.

Salam's knowledge and experience can make a difference. His track record illustrates the broad range of his activities and achievements.

### Academic work

Research Scientist, Urban Modelling Group-UCD (Current)

Salam joined the Urban Modelling Group as a Research Fellow in 2016 where he is carrying out research on a new steel connection. He is the PI of project "Simplified steel connection" funded by Enterprise Ireland and works on project "Advanced Manufacturing for the Assembly of Structural Steel" which is funded by Science Foundation Ireland. In addition he is supervising a PhD research in the ERC-funded project "TRUSS" on "Reduction of uncertainty in assessing concrete strength of existing structures". He is also carrying out research on in the automation of structural design process and developing a new method for the non-linear analysis of concrete structures.

### Awards and honours

Short listed for Irish Software Association, 2013

Representative of Engineers in Royal Irish Academy: "When the Engineer met the Mathematician: A Public Conversation" with Fields medallist Professor Cedric Villani, 2014

Institution of Structural Engineers-Ireland Branch: best lecture prize-2010 (for a lecture titled: Structural design of the Grand Canal Theatre).

## **Career history**

2016-current: Research Fellow / Urban Modelling Group-UCD

2008-current: Occasional Lecturer-UCD

2006-current: Associate / Arup-Ireland

2001-2006: Senior Engineer / OCSC-Ireland

1984-2001: Assistant Professor / University of Baghdad

1991-2001: Consultant Engineer / University of Baghdad

## **Publications**

Al-Sabah, S. and Laefer, D., Use of negative stiffness in failure analysis of concrete beams, *Engineering Structures*, 2016;126:187-199.

Sourav, S. N. A., Al-Sabah, S., McNally, C., Strength assessment of in-situ concrete for the evaluation of structural capacity: State of the art, *Civil Engineering Research in Ireland*, 29-30 August 2016, NUIG.

Al-Sabah, S., Improving finite element implementation in topology optimisation, *Civil Engineering Research in Ireland*, 29-30 August 2016, NUIG.

Al-Sabah, S. and Laefer, D., Meshfree, sequentially linear analysis of concrete, *ASCE Journal of Computing in Civil Engineering*, 2016:30(2).

Hajjalizadeh, D., Al-Sabah, A. S., O'Brien, E. J., Laefer, D. F., Enright, B., Nonlinear Analysis of Isotropic Slab Bridges under Extreme Traffic Loading, *Canadian Journal of Civil Engineering*, 2015;42(10):808-817.

Mohammed, O., Cantero, D., Gonzalez, A., Al-Sabah, S., Dynamic amplification factor of continuous versus simply supported bridges due to the action of a moving load, *Civil Engineering Research in Ireland*, 28-29 August 2014, Queen's University, Belfast, 125-130.

Al-Sabah, S. and Falter, H., Rotation-free finite element "yield line" analysis of non-isotropic slabs, *Australian Journal of Structural Engineering*, 2015;16(5):273-282.

Al-Sabah, S., and Falter, H., Finite element lower bound "yield line" analysis of isotropic slabs using rotation-free elements, *Engineering Structures* 53 (2013) 38–51

Al-Sabah and Al-Ne'aimi, Geometric and Material Non-Linearity of R.C. Frames by Stiffness Method. *Engineering and Technology-Iraq*, 1991;10(5):45-57.

Al-Mahaidi and Al-Sabah, The Use of Microcomputers in Structural Analysis. *First Seminar on Engineering Applications of Scientific Research-Iraq*, 1987:20-38.

## **Professional memberships**

Fellow, Engineers Ireland

Chartered Member, Institution of Structural Engineers

## **Professional work: Recent structural design projects**

**Air traffic control tower-Dublin airport (2016):** This is new Air Traffic Control Tower at Dublin Airport. It is a reinforced concrete structure 86m in height with a triangular cross section with a mainly steel cab at the top. The tower has to satisfy strict wind induced lateral acceleration limits. Salam is leading the structural team responsible for the design, dynamic analysis, connections, and constructability aspect of the design.

**Mayo power station (2015):** Mayo Renewable Power is a 42.5 MW biomass high efficiency CHP plant located on the former Asahi site in Killala, Co. Mayo. Salam is responsible for the development of the static and dynamic structural analysis and design criteria, structural modelling methodology, sensitivity analysis requirements, calibration of soil-structure dynamic interaction, and design requirements.

**Sustainable energy (2011-2017):** structural designs related to OpenHydro tidal turbine frame.

**Vibration study (2014-2015):** vibration performance of precast concrete waffle slabs for the microelectronic industry. (Project cost: confidential)

**Irish Representation at Venice Architecture Biennale (2012):** Structural design of the Irish representation-the bench (with heneghan peng architects).

**Youngsan tower (2012):** 270 m tall tower in Seoul Korea (with BIG architects).

**Bord Gáis Energy theatre, formerly Grand Canal Square Theatre (2010):** 2100 seat landmark theatre (with Daniel Libeskind Architects).

**Beauharnois bridge (2010):** independent checking of structural design of 2.5 km Lifeline Bridge in a seismic zone in Canada.

**Eurocode on wind action (2006-2009):** preparing the Irish National Annex to Eurocode.

**Grand Canal Square Hotel and Residences (2006-2009):** Structural design of a landmark hotel in Dublin (with architect Manuel Aires Mateus).

**Sean O'Casey bridge (2005):** Structural design of a landmark movable pedestrian bridge in Dublin.