Wolf 1061c in Stellar Metamorphosis

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Abstract: A few issues are addressed to explain Wolf 1061c, which are different than the dogma. Explanation is provided. A screenshot of the Wikipedia page of Wolf 1061c is provided to juxtapose the General Theory from dogma.

Wolf 1061c or **WL 1061c** is an exoplanet orbiting within the habitable zone of the red dwarf star Wolf 1061 in the constellation Ophiuchus, about 13.8 light years from Earth, making it the fifth closest known, potentially habitable, and confirmed exoplanet to Earth (after Proxima Centauri b, Ross 128 b, Luyten b and Tau Ceti e), yielding interest from astronomers.[3][4] It is the second planet in order from its host star in a triple planetary system, and has an orbital period of 17.9 days. Wolf 1061c is classified as a super-Earth exoplanet as its estimated radius is greater than 1.5 $R_{\oplus}$.

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Wolf 1061c is thought to be a rocky planet estimated to be a super-Earth exoplanet as its mass is about 4.3 times that of Earth and radius is over 1.5 which would give it a density either near or possibly higher than Earth.[5] It has an estimated surface gravity of 1.6 times that on Earth.[6]

In astronomical terms, the Wolf 1061 system is relatively close to Earth, at only 13.8 light years away.[3][4]

Wolf 1061c

Artist's impression of the planetary system around Wolf 1061.

Discovery	
Discovered by	University of New South Wales, Australia
Discovery site	European Southern Observatory
Discovery date	17 December 2015
Detection method	Radial velocity
Orbital characteristics	
Semi-major axis	0.08427 (± 0.00004)[1] AU
Eccentricity	0.19 (± 0.13)[1]
Orbital period	17.9 d
Star	Wolf 1061
Physical characteristics	
Mean radius	1.6[2] $R_{\oplus}$
Temperature	223 K (−50 °C; −58 °F)[2]

The discovery was announced on 17 December 2015, following a study that used 10 years of archival spectra of the star Wolf 1061 using the HARPS spectrograph attached to the ESO 3.6 m Telescope at the European Southern Observatory at La Silla, Chile.[3][6]

The planet has an equilibrium temperature of 223 K (−50 °C; −58 °F), slightly higher than that of Mars.[2]

Host star [edit]

The planet orbits a (M-type) star named Wolf 1061, orbited by a total of three planets. The star has a mass of 0.25 $M_\odot$ and a radius of 0.26 $R_\odot$. It has a temperature of 3380 K. The age is poorly constrained/unknown, but estimates would place it around a few billion years. In comparison, the Sun is 4.6 billion years old[7] and has a surface temperature of 5778 K.[8]

The star's apparent magnitude, or how bright it appears from Earth's perspective, is $10.1m$. Therefore, it is too dim to be seen with the naked eye.

Orbit [edit]

Wolf 1061c orbits its host star with less than 1% of the Sun's luminosity every 17.9 days at a distance of 0.08 AU (compared to Mercury which orbits at a distance of 0.38 AU).[6]

Habitability [edit]

The planet's orbital distance of 0.084 AU (assuming mild eccentricity) lies at the inner edge of its star's habitable zone, which extends from approximately 0.073 to 0.190 AU (for comparison, the habitable zone of the Sun is approximated at 0.5 to 3.0 AU for its different energy emission). Its host star is a red dwarf, with about a quarter as much mass as the Sun. As a result, stars like Wolf 1061 have the ability to burn up to 400–500 billion years, 40–50 times longer than the Sun will.[9]

Because it is so close to the star, it is likely to be tidally locked, meaning one side permanently faces the star and the other side permanently faces away. Although this scenario could result in extreme temperature differences on the planet, the terminator line that separates the illuminated side and the dark side could potentially be habitable, as the temperature there could be suitable for liquid water to exist.[10][*deprecated source*] Additionally, a much larger portion of the planet could also be habitable if it has a thick enough atmosphere to facilitate heat transfer away from the side facing the star.[4]

There is a lot to unpack here. In the beginning statement, they have Wolf 1061c orbiting in what they consider to be the habitable zone of the host, unfortunately this is myopic. A star's habitable zone is external to the star when it is young, but it eventually internalizes. This means given Wolf 1061c is an ocean world, it actually has two habitable zones, it has a liquid water ocean that life can swim and evolve in, as well it orbits in the external habitable zone of the red dwarf. Double habitable zones, external and internal, lead credibility to the possibility of life being on Wolf 1061c in "fish" form.[1] Secondly, Wikipedia experts say Wolf 1061c is the 5th closest known exoplanet. This is false. All "stars" as defined by the dogma are the youngest exoplanets, stars and exoplanets are not mutually exclusive constructs. This means the fifth closest "exoplanet" is either Luhman 16A or Luhman 16B, which are both

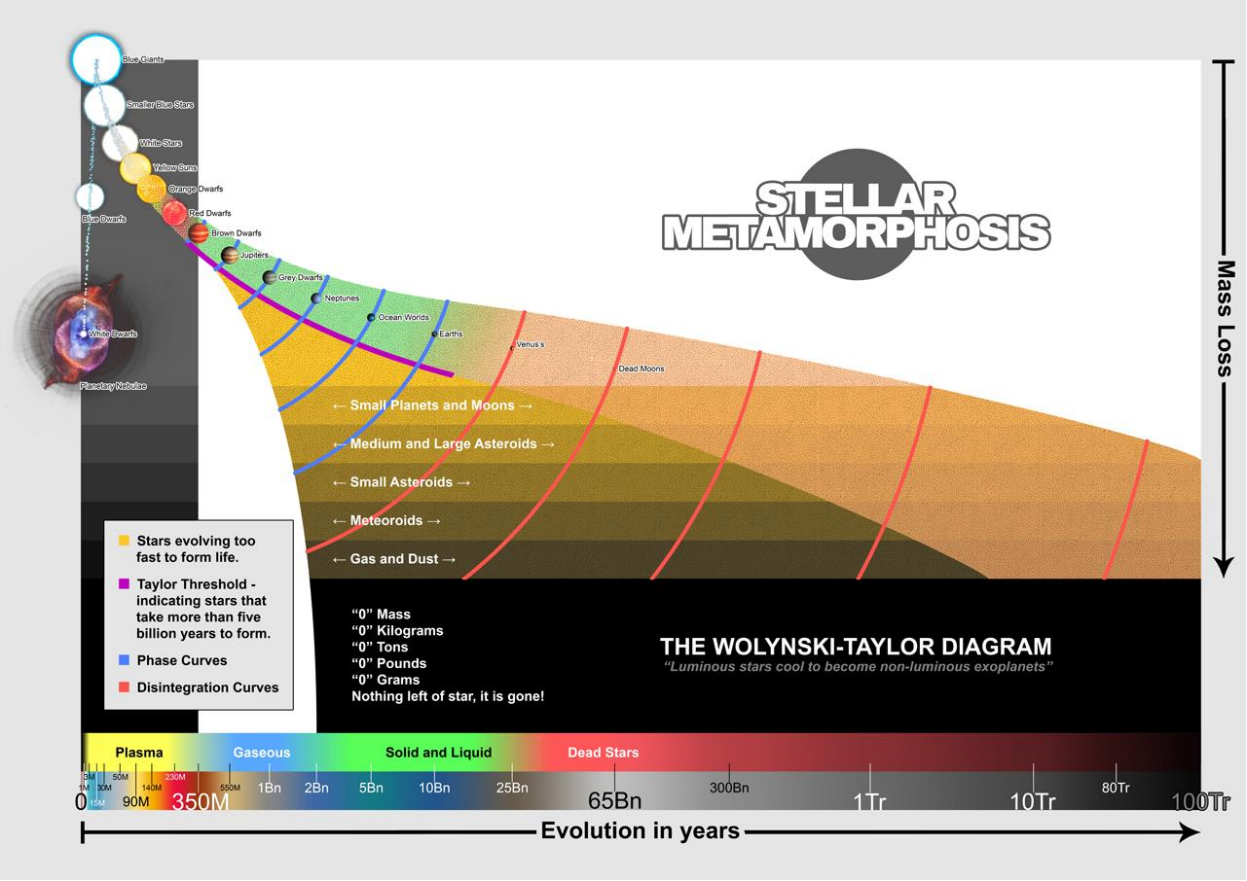
intermediate aged brown dwarfs. For those new to this theory, brown dwarfs are intermediate aged stars, they bridge the gap between the youngest exoplanets that shine, and the oldest ones that barely externally radiate from an observational standpoint.

They also call it a "triple planetary system", which again clarifies their misguided viewpoint. All planetary systems are star systems, planets are older stars, saying one system is a star system and the other is a planetary system is redundant and outdated. They are viewing at least a quadruple star system, a young red dwarf in the center with .25 the mass of the Sun, and three older stars that are in much more advanced stages of evolution. So there are four stars total. This is overviewed in the paper on stellar polymetamorphism.[2]

Another issue is that they refuse to acknowledge the time variable in planet formation. They classify Wolf 1061c as a super-Earth. Their qualifier is stated in terms of size, a "super" meaning larger Earth, which signals that they do not understand that its mass is being lost slowly, and it has already lost vast quantities of its mass very early in its evolutionary history. The qualifier signals it is "super" right now, which then blocks their minds to looking at the possibility that it was far more "super". Then saying things like, super, then ultra, or mega or giga or whatever sort of loses meaning. Young planets like the Sun are mega-Earths, Neptunes are ultra-Earths, so on and so forth. Qualifiers that center on mass, when mass is a lost physical property during the stars evolution is misguided and will lead to confusion. It is much more reasonable to give a qualifier that signals the time variable in stellar evolution. It is a post-Neptune, or an ocean-world, which also uses a qualifier that describes a physical characteristic outside of size alone. The fact that they use qualifiers that only use size, i.e. "super", signals they are not allowed to conjecture freely. Their hands are tied behind their backs, they cannot say the star evolved to that point like "post-Neptune", because that conflicts with their nebular hypothesis, as well they do not yet know of the physical characteristics of the surface, but they could if they studied theories outside of the dogma.

They do not have the age of the red dwarf Wolf 1061c, as they say it is poorly constrained, but this is not a problem inside of the general theory. It is a rule of thumb that the age of red dwarfs is <350 million years, as well, we can even be more exacting by taking the mass and rotational velocity and calculating the total angular momentum. That can tell us how old it is using gyrochronology as defined inside of the general theory. More work needs to be done with that though, a preliminary paper is outlined in the third reference.[3]

Finally the Wikipedia article places Wolf 1061, the red dwarf, as being able to burn for 400-500 billion years. This is also misguided. The possible age of Wolf 1061 is into the tens of trillions of years, but it won't be bright and burning the entire time. Mercury is the example in this regard, it is between 7 and 32.75 trillion years old.[4] As well, acceptance of the idea that young stars like Wolf 1061 can remain hot and bright for hundreds of billions of years is outdated. Earth is about 4.5 billion years old and still has a molten mantle in its interior, but it has cooled far beyond being able to shine, and even has things like mountains, a thick crust in some places, and oceans, along with a ~1 billion cubic kilometer iron/nickel core. Stars do not remain bright, large and hot in their youthful stages for hundreds of billions of years. They cool down and lose their mass by incredible proportions. By the time Wolf 1061 reaches ~350 million years old, it will be too cool to be seen strongly in the visible spectrum. It will be mostly visible as a brown dwarf star in the infrared spectrum, and then after about 1 billion years it will resemble Neptune or Uranus, which radiate very weakly (have much lower bolometric luminosities) as compared to brown dwarf stars. To say Wolf 1061 will remain in red dwarf stages of evolution for almost as long as Venus's age of ~450-750 billion years,[5] means they have confused their math equations for reality. The WT Diagram is on the next page along with the references.



[1] http://vixra.org/pdf/1809.0348v2.pdf The Evolution of Star Habitable Zones

[2] http://vixra.org/pdf/1902.0059v1.pdf Star System Polymetamorphism

[3] http://vixra.org/pdf/1909.0155v1.pdf Using Total Axial Angular Momentum to Determine the Age of Exoplanets, or Why Do Planets Spin at Different Energies?

[4] http://vixra.org/pdf/1907.0544v2.pdf Accretion and Ablation During Stellar Evolution: How Old is Mercury? V.2

[5] http://vixra.org/pdf/1905.0251v1.pdf Stellar Metamorphosis: Venus's Age with D/H Ratios Factored as Opposed to Earth and Other Bodies