First Habitable Exoplanet Orbits Red Dwarf Star

BY CASSIE RYAN

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French astrophysicists have determined that a rocky planet 20 light-years from Earth is the first planet outside our solar system— and the inhabitable one. Gliese 581d is one of several exoplanets in a system orbiting a red dwarf star Gliese 581, which has already renowned considerable attention since its discovery in 2007. Last September Gliese 581d was controversially proposed as a Gliese 581 planet, capable of supporting life. Since then, doubts have been cast on its existence. New calculations from the Institut Pierre Simon Laplace in Paris, and new simulations of exoplanet climates and surfaces at the University of Geneva, though too thought to be too small to support life, may be within the not too far future for Earth-like life to exist. Gliese 581d apparently doubles Earth size, with a mass at least seven times that of our planet. With a permanent day and night side, and less than one-third of the stellar energy that shines on Earth, the exoplanet seems unlikely to be an atmosphere thick enough for warming would probably freeze out on the night side. As well as being bathed in red light, the planet’s large mass means that in surface gravity would be approximately twice that of Earth, suggesting that life-supporting planets may not need to be particularly Earth-like at all, according to the release.

HABITABLE ZONE: An artist’s impression of the Gliese 581 planetary system. New research suggests that the planet Gliese 581d could be warm and might support life.

Study: Does Guilt Promote Cooperative Behavior?

BY CASSIE RYAN

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Social decision-making behavior could be prosocial or it could be a compromise between personal gain and feelings of guilt, according to a new study published in the journal Neuron.

The nature of cooperation at personal cost to gain clout is critical in understanding why people choose between self-centered and altruistic motivations. A French team led by Francois Le Hellard, and co-authors from the University of Lyon, the National Institute for Astrophysics in Marseille, and the University of Paris, used high-definition video to study how people make decisions when facing potential personal losses and gains.

Possible explanations could be that people find it inherently good, or alternatively that being social is beneficial to them, so they cooperate to avoid their guilt.

A research team comprising cognitive neuroscientists and economists tested this hypothesis by having volunteers who played the role of investors in a game, deciding how much money to send to the investor, the incumbent, to decide how much money to send to another player, the trustee.

Thus behavior, often, elicited a moral expectation of the participants in that they were expected to return the investor’s cost, maximizing financial reward.

This provided good evidence in that negative emotions like guilt and embarrassment were associated with feelings of responsibility and guilt, and the on-hand, minimize the experience of negative emotions and gain.

The modeling also shows that the atmosphere of the exoplanet directly because it is relatively close to Earth. The team then inves-...