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By: Gabriel Gache, Science News Editor

Earth's Identical Twin Only 4 Light-years Away?

Scientists predict the existence of an Earth-like planet in Alpha Centauri system

There are possibly millions of Earth-like planets lying out there in the immensity of the universe, each bearing just the proper conditions for the appearance and evolution of life, we just have to find them. Only a decade ago or so, the human race wasn't even capable of telling whether nearby stars, or any star in the universe for that matter, bared any planet. The fact is that the first ever exoplanet was discovered in 1985 around a main sequence star, however its detection wasn't confirmed until 1996. Since then, more than 276 exoplanets have been discovered and confirmed, but none seems to have the characteristics of our planet. Gas giants, rocky planets ten times larger than the Earth. The problem is that the effects produced on a star by small planets such as our own are simply too low to be observed from great distances. Now astronomers claim to have evidence that there may be an Earth-like planet, or more, around the closest star to us, Alpha Centauri, a triple system about 4 light years away from Earth. Although on the night sky Alpha Centauri looks like a single bright star, as I said earlier, it is in fact a triple system formed of two Sun-like stars orbiting each other from a distance of about 23 astronomical units, part of the Population I of stars, meaning they have extremely high metallicity, a property shared by most stars that form in clouds of matter consisting of high amounts of dust, which is also a proper environment for the birth of protoplanetary disks and, possibly, planets. The usual technique for detecting the presence of a planet orbiting a star involves measuring the wobble of the star, induced by the gravitational pull of the planet. University of California researcher Javiera Guedes say that computer simulations have already shown in the past that there is a good chance that planets might have formed around one or both of the stars in the Alpha Centauri triple system. Her colleague, Greg Laughlin, from the University of California Santa Cruz, argues that, if the theory about planetary formation is correct, than there should definitely be at least a planet in that system. Even more intriguing is the fact that these planets have a high chance that they have conditions proper for the appearance of life. The simulations conducted by Guedes were mostly related to the smaller star, Alpha Centauri B, where Earth-like planets may form in the habitable zone of the system, and thus bear liquid water. There is no need for creating new detection methods, however the time required for such processes may span over the period of a few years. Most of the exoplanets found so far are gas giants, easy to understand why. Stellar wobble favors the detection of massive planets, as it depends on the gravitational field generated by the planet. Thus, greater gravitational pull basically means a greater chance to discover a new planet. Alpha Centauri B, on the other hand, is not just any star. It is the closest star to us, thus very bright. Further still, the detection of an Earth-like planet by measuring the wobble of the star is favored, because Alpha Centauri B is a relatively calm star, which would not interfere too much with the effects determined by the presence of a small planet. Its enhanced brightness can provide some of the most essential information related to the planet: whether it has or not an atmosphere, its chemical composition and many other characteristics. The study of the Alpha Centauri B star will be conducted by using the 1.5 meter telescope from the Cerro Tololo Inter-American Observatory in Chile, and will also include an evaluation of the natural oscillation of the star in order to create an image of their internal structure. Alpha Centauri B skeptic researcher Sara Seager for the Massachusetts Institute of Technology, is not so convinced about the validity of the findings of the UC team, but she recognizes that the simulations related to the detection of the planet are quite impressive.