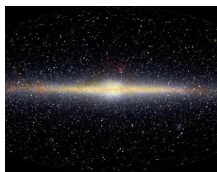


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By: Dan Talpalariu, Science Editor



Galaxy's red core
E L
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Stars that Eat Dark Matter Live Longer

Gobbling up dark matter makes Milky Way core stars redder and brighter

A recent study indicates that there are stars in the proximity of the Milky Way's core that feed on dark matter, thus prolonging their lifespan with more than a billion years. Finding them would possibly help understanding what dark matter really is and how exactly it functions.

Although responsible for 22% of the mass of the galaxy (96% when associated with dark energy), dark matter is scarcely spread in the regions closer to the edges of the Milky Way so that it doesn't have much of an impact on the stars there. Yet, near the massive black hole in the center, it becomes dense enough to be engulfed by the resident stars at colossal rates. In order to observe this effect closely, Pat Scott and his team from the Stockholm University in Sweden have developed computer models of stars' evolution, as they absorb weakly interacting massive particles (WIMPs), a category of candidates for the statute of dark matter particles, through their gravity.

As their simulation showed, stars with an elongated orbit closer than 0.3 light years from the galactic core can assimilate important quantities of WIMPs. When captured, the particles of dark matter smash with the stars' gas and, by losing their energy, they end up in the core of the respective stars, where they collide against each other, causing an energy blast that would inflate the cosmic body. This, in turn, determines the star to burn its own energy at slower rates and look redder than suggested by its mass. A small Sun-sized star could thus gather sufficient dark matter in order to stretch its lifespan by about a billion years. "If there is even a single star with the predicted properties found there, it will be direct evidence that astrophysical dark matter consists of WIMPs and not something else - a major breakthrough," stated Igor Moskalenko from the Stanford University in California.