News

Strongest limit set on dark matter's mass

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The results indicate that if a particle's mass is less than 40 GeV, then it cannot be a dark matter particle, said Koushiappas. In contrast, DAMA, XENON and CRESST measurements suggest that the mass of dark matter lies between just 7 to 12 GeV.

"If the WIMP mass is around 10 GeV, as suggested by the previous underground experiments, then we should already have seen a signal in the Fermi telescope data, but we don't," he said.

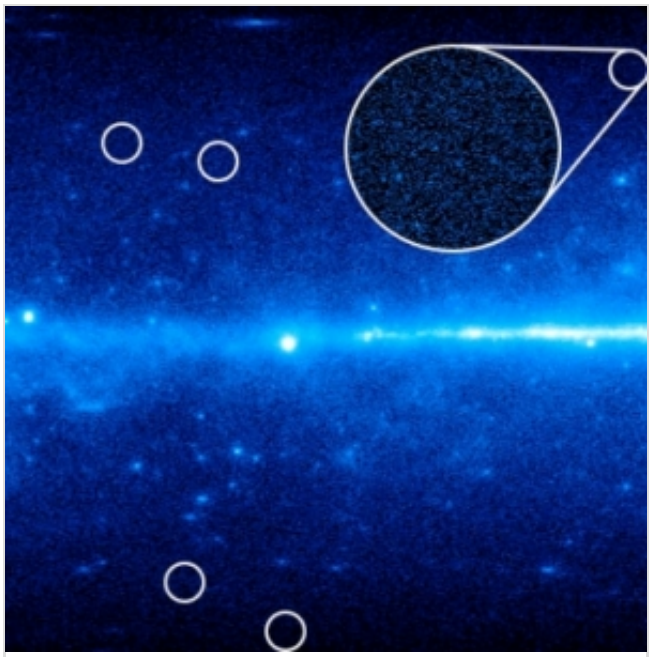
Light WIMPS still possible

However, Koushiappas is also cautious: "The disparate figures come from the fact that we have two experimental techniques (indirect and direct) that approach the dark matter hunt from two very different directions, and the two are not consistent in the simple generic case," he explained. "It is possible that the solution to this discrepancy comes from the underlying assumptions of what the physics of dark matter actually is."

"These are exciting and interesting new results: the limit presented here adds to the scepticism regarding the recent low-mass 'detections' by direct search experiments such as DAMA/LIBRA, CoGeNT and most recently, CRESST," commented Alexander Murphy of Edinburgh University in Scotland. "Results from other such experiments, such as CDMS and ZEPLIN all exclude the low-mass results with fairly high confidence. Koushiappas' and Gringer-Sameth's work is important in that it uses a completely independent technique – satellite observations of the radiation that would be produced from annihilations of WIMPs in nearby dwarf galaxies."

Neal Weiner of the Centre for Cosmology and Particle Physics at New York University added, "This is a really nice result but it doesn't really affect my thinking about whether light WIMPs are viable. Although I think the claims of what to take away are too much, I do believe that these researchers have actually started pushing into the range relevant for detecting 'conventional' WIMPs."

The 'light' explanation of WIMPs may be just as alive



Physicists have set strongest limit on the mass of dark matter yet, according to a new study. Brown physicists studied seven dwarf galaxies, some shown here circled in white. Their observations indicate these galaxies are full of dark matter because their stars' motion cannot be explained by their mass alone.

Credit: NASA/DOE/Fermi-LAT Collaboration/Koushiappas and Geringer-Sameth/Brown University

today as it was last week, he said.

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Speed of light

My take on dark matter is, that it is a miscalculating, stemming from our presumption that the speed of light is constant.

What if the speed of light varies through time and space?

That creates some interesting theory, at least I think so.

Antimatter is the mind and consciousness of all living entities.

You are your own universe.

Reality is where the minds (antimatter) meets the physical universe.

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Submitted by Visitor on 6 December 2011 - 5:01am.