ICRC2015

ICRC
The Astroparticle Physics Conference
34th International Cosmic Ray Conference
July 30 - August 6, 2015
The Hague, The Netherlands

Contribution ID: **255** Type: **Poster contribution**

Search for Gravitino Dark Matter Decay with IceCube

Tuesday 4 August 2015 16:00 (1 hour)

Most searches for Dark Matter primarily focus on the WIMP paradigm, which predicts dark matter masses in the GeV - 10 TeV range. However, these relatively low energy searches continue to produce null results, possibly suggesting that dark matter is something other than WIMPs. Gravitinos, on the other hand, can satisfy the cosmological constraints on dark matter, and decay with a lifetime orders of magnitude longer than the age of the universe, producing extremely high energy neutrinos. The IceCube Neutrino Observatory has already had success detecting EHE extragalactic neutrinos, and is well suited to search for dark matter in this high energy regime. I present the status of a search for a gravitino decay signal using the IceCube Neutrino Observatory.

Collaboration

IceCube

Registration number following "ICRC2015-I/"

270

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Session Classification: Poster 3 DM and NU

Track Classification: NU-EX