



Contribution ID: 125

Type: **Poster contribution**

A search for Dark Matter in the centre of the Earth with the IceCube neutrino detector.

Tuesday, 4 August 2015 16:00 (1 hour)

Many models predict new particles that have the properties of a Weakly Interacting Massive Particle (WIMP) and could explain the dark matter observed in the universe. Heavy celestial bodies, such as the Earth, could capture these WIMPs and accumulate them. Over time the WIMPs will self-annihilate and may produce standard model particles, including neutrinos. Large scale neutrino telescopes, such as the cubic kilometre IceCube Neutrino Observatory located at the South Pole, can be used to search for such neutrino fluxes.

The dark matter annihilation rate in the centre of the Earth, and thus the resulting neutrino flux depend on the local Dark Matter density and the mass of the Dark Matter particle. This flux could be within reach of a large neutrino detector like IceCube.

We present the status of the first search for Earth WIMPs with the IceCube detector.

Registration number following "ICRC2015-I/"

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