



Contribution ID: 90

Type: **Presentation**

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

*Tuesday, June 24, 2014 5:10 PM (10 minutes)*

Many models predict that dark matter consists of Weakly Interacting Massive Particles (WIMPs). Heavy celestial bodies, such as the Earth, might capture these WIMPs, accumulate them in their gravitational centre and over time these dark matter particles will self-annihilate. These annihilations 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 weak, but very specific neutrino flux could be within reach of a large neutrino detector like IceCube.

We will present the status of the first search for a neutrino signal from Earth WIMPs with the IceCube detector.

**Primary author:** Mr KUNNEN, Jan (Vrije Universiteit Brussel)

**Presenter:** Mr KUNNEN, Jan (Vrije Universiteit Brussel)

**Session Classification:** Dark Matter: Indirect Detection

**Track Classification:** Dark Matter Indirect Detection