



Contribution ID: 1

Type: **Oral contribution**

Dark Matter interpretation of the IceCube diffuse neutrino flux

Thursday, 20 April 2017 09:40 (15 minutes)

The recent study on the the 6-year up-going muon neutrinos by the IceCube Collaboration and the multi-messenger analyses support the hypothesis of a two component scenario explaining the diffuse TeV-PeV neutrino flux. Depending on the steepness of the astrophysical power-law, an excess in the IceCube data is shown in the energy range 10-100 TeV (low-energy excess) or at PeV (high-energy excess). A statistical analysis on the neutrino energy spectrum and on the angular distribution of neutrino arrival directions is performed in order to shed light on the origin of such excesses. In both cases, we characterize a two-component neutrino flux where decaying/annihilating Dark Matter particles provide a contribution to the IceCube observations.

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Session Classification: Sessione Cosmologia e Astroparticelle

Track Classification: Sessione Cosmologia e Astroparticelle