

Seminario

Departamento de Física Teórica

“Probing strong dynamics with cosmic neutrinos”

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Abstract:

Triggered by the IceCube detection of astrophysical neutrino candidates in the range of PeV energies, we propose to investigate the sensitivity of future South Pole neutrino-detection experiments to the neutrino-nucleon cross section. By using the combination of up- and down-going data of neutrinos, sensible to neutral current processes one can disentangle particle physics from astrophysics and constrain the neutrino interactions. In particular, we show that IceCube-Gen2 will be able to determine the neutrino-nucleon cross section with a precision comparable to the perturbative QCD informed by collider data and eventually to detect new physics.

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