

A multichannel picture of the Sun at high energies

High energy cosmic rays reach the solar surface and induce a signal that could be observed in up to five different channels: (i) a cosmic ray shadow (HAWC has measured its energy dependence); (ii) a flux of gamma rays (observed by Fermi-LAT up to 200 GeV); (iii) a flux of high energy neutrons (unfortunately, there are no hadronic calorimeters in space); (iv) a muon shadow (detected by IceCube); (v) a flux of high energy neutrinos (not observed yet). We model these fluxes and show that they are tightly correlated, which reduces the uncertainty in the flux of high energy neutrinos expected from the solar disk.

Primary author: GUTIERREZ, Miguel

Co-author: Dr MASIP, Manuel (Universidad de Granada)

Presenter: GUTIERREZ, Miguel