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## On the study of solar flares with neutrino observatories.

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Since the end of the eighties, in response to a reported increase in the total neutrino flux in the Homestake experiment in coincidence with solar flares, neutrino detectors have searched for signals of neutrinos associated with solar flare activity. The acceleration of protons in the magnetic structures of such flares produce mesons in collisions with the solar atmosphere which subsequently decay, resulting in neutrinos at O(MeV-GeV) energies. The study of such neutrinos would provide a novel window on the underlying physics of the acceleration process.

The sensitivity of the IceCube Neutrino Observatory, located at the geographical South Pole, to solar flares is currently under study. I will introduce a new approach for a time profile analysis based on a stacking method of selected solar flares likely to be connected with pion production. An initial approach towards a neutrino search using the current IceCube as well as first efforts to improve the detection efficiency in the future will be presented.

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