

Abstract Submitted
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Search for neutron sources in the energy range from 0.3 to 3 EeV with the Pierre Auger Observatory¹ FRANCISCO SALESA GREUS, MIGUEL MOSTAFA, Colorado State University, PIERRE AUGER COLLABORATION — The Pierre Auger Observatory is a cosmic ray detector located in Argentina in the Mendoza province. It consists of an array of 1600 surface detector (SD) stations equally distributed over an area of 3000 km². The separation between stations is 1500 m. The main goal of the observatory is to discover and understand the origin of the high-energy cosmic rays with energies exceeding 10 EeV. The granularity of a section of 27 km² of the SD array was increased by deploying additional tanks, with a 750 m separation. This enhancement allows the detection of cosmic rays of energies starting at 0.3 EeV. Assuming that gamma rays detected at TeV energy are produced by π^0 decays in sources a few kpc away with an energy spectrum that extends unbroken up to EeV energies, neutrons from these sources should be detected with the Auger Infill array. An all-sky survey, looking for Galactic neutron sources in the 0.3-3 EeV energy range will be presented in this talk. As no neutron sources were detected in the data from the Auger Infill array, the corresponding energy flux limits were computed. These limits are already of physical interest since they are of the same order of magnitude as the theoretical predictions for Galactic flux emission.

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