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Hunting for Ultra-High-Energy Neutrinos with the Pierre Auger Observatory

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Ultra-High-Energy Neutrinos are expected to be produced both by point-like sources and by the interaction of Ultra-High-Energy Cosmic Rays (UHECRs) with background photons. The Pierre Auger Observatory has the potential to detect such neutrinos with its Surface Detector (SD) array. Its capability to distinguish between cosmic ray and neutrino-induced showers is particularly high for inclined showers (zenith above 60°) with its maximum sensitivity being reached in the earth-skimming region. In addition, the Fluorescence Detector (FD) can be exploited to search for steeply upward-going showers in a phase space that is not accessible with the SD and in a complementary energy range. In this contribution, we will present upper limits on the neutrino flux derived from the non-observation of neutrino candidates which will be used to set constraints on neutrino production models and on source properties of UHECRs in the EeV range. The upper limit for upward-going shower events derived by the FD will also be presented and discussed in the context of multimessenger astronomy.

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