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Searching for neutral particles at the highest energies at the Pierre Auger Observatory

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The Pierre Auger Observatory, being the largest air-shower experiment in the world, offers an unprecedented exposure to neutral particles at the highest energies. Since the beginning of data collection more than 18 years ago, several searches for ultra-high-energy (UHE, $E > 10^{17}$ eV) photons and neutrinos have been performed. The upper limits on the diffuse flux of UHE photons and neutrinos derived from Auger data are among the most stringent in the world, severely constraining current models for the origin of UHE cosmic rays. In addition, the Pierre Auger Observatory contributes to current efforts in multimessenger astrophysics through follow-up searches for UHE photons and neutrinos in association with transient events, such as gravitational wave events.

In this contribution, the various activities concerning searches for UHE photons and neutrinos in the data from the Pierre Auger Observatory are presented and the current results are summarized. In addition, future perspectives will be discussed.

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