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Multi-messenger studies with the Pierre Auger Observatory

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Photons, neutrinos, gravitational waves and cosmic rays may originate from the same source regions, so a multi-messenger approach is crucial for a better understanding of the physics behind the production and propagation of these messengers. In this context, the Pierre Auger Observatory plays a key role to investigate the highest-energy primary particles, given its ability to distinguish extensive air showers generated by ultra-high-energy photons and neutrinos from hadronic showers above 10^{17} eV. The latest results in the search for diffuse fluxes and point-like sources of neutrinos and photons will be discussed in this contribution together with follow-up analyses. Results on photon fluences from a selection of gravitational wave sources detected by LIGO/Virgo and results of the search for ultra-high-energy neutrinos from binary black hole mergers will also be presented.

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