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Hadronic and Shower Physics with the Pierre Auger Observatory

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Extensive air showers initiated by ultra-high-energy cosmic rays are a unique opportunity to probe hadronic interactions in energy and phase-space regions out of the reach of man-made accelerators. The Pierre Auger Observatory, now entering its Phase II with the AugerPrime upgrade, is a multi-hybrid detector capable of extracting numerous shower observables. These observables directly probe the air shower dynamics and hadronic interactions therein, as well as test the most up-to-date models describing high-energy hadronic interactions.
In this contribution, we will review the most relevant results from the Observatory.

Primary author: CAZON, Lorenzo (IGFAE - USC)

Presenter: CAZON, Lorenzo (IGFAE - USC)

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