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Type: **Talk**

## **Towards Phase II of the Pierre Auger Observatory – AugerPrime**

*Friday 2 September 2022 12:40 (20 minutes)*

The Pierre Auger Observatory, located in the Southern hemisphere in the province of Mendoza, Argentina, is the world's largest cosmic ray experiment. It implements complementary detection techniques to observe cosmic ray induced air showers at energies far beyond the limits reached at the most powerful particle accelerators. During Phase I, for almost two decades, the hybrid design of the Auger Observatory allowed studying the origins and properties of ultra-high-energy cosmic rays, providing unique results in astroparticle physics with unprecedented statistics. Nevertheless, there are still open questions that need to be answered. Consequently, Auger Phase II, called AugerPrime, is underway. The AugerPrime program includes the installation of plastic scintillators (SSD) and radio antennas atop each water-Cherenkov detector (WCD); new electronics to process signals from the WCD and the SSD with higher sampling frequency; an extension of the dynamic range of measurement through an additional small photomultiplier tube in the WCD; an array of underground scintillator detectors to measure the muonic component of extensive air showers. The main objective of AugerPrime is to provide an enhanced estimation of the mass composition of cosmic rays and increased statistics at the highest energies, helping us to elucidate the mystery of the most energetic particles in the Universe.

### **Is this abstract from experiment?**

Yes

### **Name of experiment and experimental site**

Pierre Auger Collaboration, Observatorio Pierre Auger, Av. San Martin Norte 304, 5613 Malargue

### **Is the speaker for that presentation defined?**

Yes

### **Details**

Paula Gina Isar for the Pierre Auger Collaboration

### **Internet talk**

Yes

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**Session Classification:** Cosmology, Astrophysics, Gravity, Mathematical Physics

**Track Classification:** Main topics: Cosmology, Astrophysics, Gravity, Mathematical Physics