



Universidad del País Vasco  
Euskal Herriko Unibertsitatea  
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## Seminarios de Física Teórica Fisika Teorikoa: Hitzaldiak

# The arcane Ultra-High Energy Cosmic Radiation

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**Abstract** More than fifty years have elapsed since it was discovered that the particles of the cosmic radiation can reach macroscopic energies (above a Joule). However, we still do not know what atomic nuclei make up the flux of particles that continuously bombard the Earth's atmosphere. Neither do we know what sources originate them or what mechanisms are capable of giving them energies that, in some cases, exceed by a factor of one million the energies of protons accelerated in the largest collider so far built: the LHC. The Pierre Auger Observatory was built to solve these mysteries. This is an array of particle detectors located in Malarge (Mendoza, Argentina), spawning over an area of  $3,000 \text{ km}^2$ . By studying the arrival directions of more than 30,000 particles, we have shown that cosmic rays of ultra-high energy have an extragalactic origin. We have thus closed a debate of decades, but there are still interesting measurements and analyses to be done to solve one of the most particular puzzles of today's Physics.

Prof. A. Chamorro Seminar Room, Dept. of Theoretical Physics, Corridor 4.-2.

**Wednesday, Feb. 20th, 2019**

**Time:11:40 am**