



Wednesday

May 2

4:00 P.M.

Rm 118 NSH

Ultra-High Energy Cosmic-Rays – from the ground (and) up!

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Ultra-High Energy Cosmic-Rays (UHECRs - $E > 10^{18}$ eV) lie at the very end of the cosmic-ray spectrum. Their nature and origin remain largely unknown, and their study is made difficult in part because of the very low flux impinging on Earth's atmosphere. The leading UHECR experiment is the Pierre Auger Observatory, located in the Mendoza province of Argentina. The Observatory consists of an array of 1660 water Cherenkov detectors spread over 3000 km² and of a collection of 24 telescopes located on its outskirts to study the properties of the extensive air showers induced by the UHECRs in the atmosphere. A selection of recent results obtained by the Observatory will be presented, as well as its ongoing upgrade. Ultimately however, the future of the field may be in space, where UHECR exposure can be increased by roughly an order of magnitude. In this colloquium, I will also discuss our efforts toward a UHECR (and cosmogenic neutrino) space observatory.