



Exploring the Universe at the highest energies with the Pierre Auger Observatory.

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Tuesday, 24 June 2014
16:45 h, Auditorium

Enormous progress has been made recently in observing the most energetic particles in Nature. However, major puzzles remain to be solved. In particular, a flux suppression of cosmic rays has been observed above an energy of 5×10^{19} eV, such as expected from photo-pion production by protons propagating through the CMB (GZK-effect). However, data from the Pierre Auger Observatory, the worlds largest cosmic ray observatory located in Argentina, show a shift towards heavier primary particles above 5×10^{18} eV, thereby suggesting to see the maximum energy of cosmic particle accelerators rather than energy losses by propagation effects. We shall review the experimental data and discuss its consequences. Observing particles up to 10^{20} eV enable tests also of particle-and fundamental physics, such as features of hadronic interaction at energies up to $\sqrt{s}=100$ TeV, or Lorentz invariance violation or smoothness of space-time structure. We shall end the presentation by outlining plans for the near-term future and discussing the prospects and future challenges of UHECR physics.



Coffee, tea and cookies will be served at 16:30h

After the seminar there is a chance for private discussions with the speaker over wine and pretzels

