Contribution ID: **324** Type: **Talk**

Particle acceleration in shocks of Radio Galaxies

Tuesday 28 August 2018 10:00 (30 minutes)

We discuss the possibility that ultra-high energy cosmic rays (UHECR) may be accelerated by shocks in the lobes of radio galaxies. Acceleration at the termination shocks of jets is problematic because relativistic shocks are poor accelerators to high energy. We show that non-relativistic shocks with suitable Hillas parameters occur in plasma streams flowing out of the jet termination regions and into the lobes. We propose that the radio galaxies Centaurus A and Fornax A were efficient UHECR accelerators during earlier more active phases and that UHECR stored since then in the lobes can account for hotspots in the AUGER data above 57EeV.

Primary author: Prof. BELL, Tony (University of Oxford)

Co-authors: Dr ARAUDO, Anabella (Astronomical Institute, Czech Academy of Sciences); Dr MATTHEWS, James (University of Oxford); Prof. BLUNDELL, Katherine (University of Oxford)

Presenter: Prof. BELL, Tony (University of Oxford)

Session Classification: Cosmic-rays

Track Classification: Plenary