

Ultimate precision in cosmic-ray radio detection - the SKA

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As of 2023, the low-frequency part of SKA-1 will go online in Australia. It will constitute the largest and most powerful low-frequency radio-astronomical observatory to date, and will facilitate a rich science programme in astronomy and astrophysics. With modest engineering changes, SKA-1 low will also be able to measure cosmic rays via the radio emission from extensive air showers. The extreme antenna density and the homogeneous coverage provided by more than 60,000 antennas on an effective area of one km² will push radio detection of cosmic rays in the energy range around 10^{17} eV to ultimate precision, with superior capabilities in the reconstruction of energy, depth of shower maximum and arrival direction. We will discuss the status of the project and outline the scientific potential of cosmic-ray detection with the SKA.

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