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Spectral index analysis of the data from the Auger Engineering Radio Array

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The first stage of the Auger Engineering Radio Array has been deployed at the Pierre Auger Observatory in Argentina and is taking data. It measures radio signals in the MHz range from air showers induced by cosmic rays with energies above 10^{17} eV. It is overlooked by the fluorescence telescopes and is located in a dense part of the particle detector array. This allows for cross-calibration of the individual techniques and therefore this is an excellent location to study radio emission from extensive air showers.

The index of the measured frequency spectra of the cosmic-ray-induced signals changes with the distance of the detector to the shower axis and with the zenith angle. The observed dependencies are in agreement with simulations. We are investigating whether the spectral index can be used as a tool to determine the composition of cosmic rays.

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