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Detection of Radio Emission from Air Showers in the MHz range at the Pierre Auger Observatory

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The Auger Engineering Radio Array (AERA) at the Pierre Auger Observatory in Argentinia is constructed in multiple stages starting in 2010. The current stage consists of 124 dual-polarized radio detector stations covering an area of 6 km^2. One of the main goals is to study the radio emission process for energies beyond 10^{17} eV in the range from 30-80 MHz. Having the unique opportunity for multi-hybrid measurements of air showers alongside the other detectors and also the low-energy extensions at the Pierre Auger Observatory, AERA is a milestone for further large-scale radio experiments. Combining the advantages of other detector types, AERA is investigating the sensitivity to air shower parameters.

This contribution gives an overview of the motivation and science goals of AERA and shows the current status and performance of the detector. First multi-hybrid events will be presented as well as the most recent results by the AERA group. Polarization measurements which show a strong evidence for a radial polarized component in the electric field vector will be discussed. An outlook with future perspectives will be given.

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