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Measurement of the air shower components energy spectrum using an hybrid detector station

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The measurement of air shower components' energy spectra has been shown to be crucial for understanding the primary cosmic rays and the physical processes governing their interactions in the atmosphere.

This study introduces the use of a hybrid detector station for precise measurement of the energy spectrum of air shower components. The hybrid detector station integrates data from a scintillator surface detector (SSD), a water Cherenkov detector (WCD), and Resistive Plate Chambers (RPCs). This combination allows for assessment of the energy spectrum of electromagnetic particles and low-energy muons, independent of potential detector aging effects.

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