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Cosmic ray science with scintillators and high schools

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The High School Project on Astrophysics Research with Cosmics (HiSPARC) is a large extensive air shower (EAS) array with detection stations throughout the Netherlands, United Kingdom, Denmark and Namibia. The majority of detection stations is hosted by high schools. A HiSPARC station consists of two or four scintillators with PMTs placed inside roof boxes on the rooftop of a building. Next to outreach purposes HiSPARC can also be used for scientific research. In this talk I will focus on the science and discuss the HiSPARC experiment, our simulation pipelines and comparisons between simulation and experimental data. I will discuss two unexpected low energy phenomena we encountered in the data. For one of these it is still unknown what is causing the signal but there seems to be a close relation with atmospheric variations.

Author: VAN DAM, Kasper (Nikhef)Presenter: VAN DAM, Kasper (Nikhef)Session Classification: Parallel Session