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## **J. Muller: Airborne inter-calibration of H.E.S.S. telescopes**

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Cherenkov telescope arrays such as H.E.S.S. or the planned future CTA are systems of imaging atmospheric Cherenkov telescopes. They detect high energy photons above 10GeV (gamma-rays) from cosmic sources based on the Cherenkov emission of charged particles produced when these photons enter the atmosphere. They need to be calibrated to be able to compare and combine the measurements of the different telescopes. So far this has been done with atmospheric muons as the expected energy distribution of atmospheric muons can be well deduced from simulations. This method has numerous drawbacks, such as the impossibility of a wavelength dependent inter-calibration, which is needed for future high precision arrays such as CTA. I will talk about the first single light source inter-calibration of a Cherenkov telescope array which was performed with an LED mounted on a drone. To do this, first simulations of the situation have been run and then the actual drone flights were operated above H.E.S.S. The inter-calibration with the data taken during these flights was consistent within about 5% with the muon inter-calibration. This result could even be improved by ameliorating, among other, the treatment of the drone-telescope distance, the atmospheric absorption and the pixel boundaries.

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**Classification de Session:** Students' presentations