



ID de Contribution: 55

Type: **oral presentation**

Advanced digital self-triggering of radio emission of cosmic rays

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The Auger Engineering Radio Array AERA will measure the radio emission of extensive air showers. One important component of the experiment is the self trigger system, which has to overcome various sources of background signals to detect the specific short radio pulses introduced by ultra high energetic cosmic rays. The goal of the system is to reduce the original raw data rate down to a sub-Hertz coincidence trigger rate, making it possible to use WiFi communications. Although the signal pulses are spread over a wide frequency range, detection is only possible in a restricted band from 30 to 80 MHz, where man made radio background can be neglected. To suppress this background, high order analogue band filters have been developed. The talk will describe the new analogue and digital front-end electronics and compare three different approaches for the self-trigger under test by theoretical (REAS3 and MGRM) simulations and some experimental results.

Auteur principal: RÜHLE, Christoph (KIT-IPE)**Co-auteur:** AUGER COLLABORATION**Orateur:** RÜHLE, Christoph (KIT-IPE)**Classification de Session:** Antenna and trigger R&D