Contribution ID: **21** Type: **Participant talk**

# Development of a Signal Model and Reconstruction Framework for GRAND for the Purpose of an Autonomous Radio Trigger

*Thursday, 6 October 2022 18:21 (12 minutes)*

Ultra-high energy (UHE) neutrinos induce particle cascades, called extensive air showers, in Earth's atmosphere. With its unprecedented sensitivity, the Giant Radio Array for Neutrino Detection (GRAND) is going to be able to consistently detect the radio signals emitted by the extensive air showers caused by UHE neutrinos. GRAND plans to cover $200\,000\,\mathrm{km}^2$ with a network of radio antennas with a spacing of one antenna per square kilometer. The antenna array will be optimised for the detection of inclined air showers. We use CORSIKA air shower and detector simulations to develop a signal model of the radio emission. We will use the signal model to reconstruct the parameters of air shower events, including electromagnetic shower energy, primary particle mass and energy, arrival direction and shower type.

This talk gives an overview on the radio emission of extensive air showers and how a model of the detector signal can be used for event reconstruction. The signal model and reconstruction framework are going to be used to develop a radio self-trigger for GRAND.

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**Session Classification:** Participants Presentations

**Track Classification:** Main session