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Search for Cosmic Particles with the Moon

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The low flux of the ultra-high energy cosmic rays (UHECR) at the highest energeis provides a challenge to answer the long standing question about their origin and nature. A significant increase in the number of detected UHECR is expected to be achieved by employing Earth's moon as detector, and search for short radio pulses that are emitted when a particle interacts in the lunar rock. Observation of these short pulses with current and future radio telescopes also allows to search for the even lower fluxes of neutrinos with energies above 10^{22} eV, that are predicted in certain Grand-Unifying-Theories (GUTs), and e.g. models for super-heavy dark matter (SHDM). In this contribution we present the initial design for such a search with the LOFAR radio telescope.

Summary

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