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The H.E.S.S. multi-messenger program

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Based on fundamental particle physics processes like the production and subsequent decay of pions in interactions of high-energy particles, close connections exist between the acceleration sites of high-energy cosmic rays and the emission of high-energy gamma rays, high-energy neutrinos and other messengers like gravitational waves. In most cases these connections provide both spatial and temporal correlations of the different emitted particles. The combination of the complementary information provided by these messengers allows to lift ambiguities in the interpretation of the data and enables novel and very sensitive analyses.

In this contribution we'll introduce and describe the H.E.S.S. multi-messenger program. The core of this newly installed program is the combination of high-energy neutrinos and high-energy gamma rays. We'll furthermore present searches for high-energy gamma-ray emission in coincidence with Fast Radio Bursts (FRBs) and gravitational waves. We'll provide an overview over current and planned analyses and present recent results.

Collaboration

H.E.S.S.

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