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Open-Science Integration of a Combined Analysis of KM3NeT and CTA into the EOSC Infrastructure

Wednesday 30 August 2023 18:00 (15 minutes)

KM3NeT is a cubic kilometer neutrino underwater telescope which is located in the Mediterranean Sea. The commissioning of the detector infrastructure is currently underway. The Cherenkov Telescope Array (CTA) is the next generation ground-based observatory for gamma-ray astronomy at very high energies. Both collaborations contributed to ESCAPE, the European Science Cluster of Astronomy and Particle Physics, which brings together many astrophysics and particle physics experiments to further open science in the community via the European Open Science Cloud (EOSC). The data being of the event type for both neutrino and gamma astronomy experiments suggest using the same scientific tools for analyses. In the multi-messenger era, synergies of different experiments for investigating a specific scientific question yields significant additional insights not achievable with information from one messenger alone. This approach was successfully employed in a combination of KM3NeT and CTA data to distinguish between leptonic and hadronic emission scenarios of gamma-ray sources in the Milky Way using a common software framework. This contribution demonstrates the successful deployment of the analysis into the ESCAPE EOSC thematic cluster infrastructure for future usage in the open science regime.

Submitted on behalf of a Collaboration?

Yes

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