## **RICAP-22** Roma International Conference on AstroParticle Physics



Contribution ID: 77

Type: not specified

## Near-future discovery of point sources of ultra-high-energy neutrinos

Wednesday, 7 September 2022 18:00 (20 minutes)

Upcoming neutrino telescopes may discover ultra-high-energy (UHE) cosmic neutrinos, with energies beyond 100 PeV, in the next 10–20 years. Finding their sources would expose the long-sought origin of UHE cosmic rays. We search for sources by looking for multiplets of UHE neutrinos arriving from similar directions. Our forecasts are state-of-the-art, geared at neutrino radio-detection in IceCube-Gen2. They account for detector energy and angular response, and for critical, but uncertain backgrounds. We report powerful insight. Sources at declination of  $-45^{\circ}$  to  $0^{\circ}$  will be easiest to discover. Discovering even one steady-state source in 10 years would disfavor most known steady-state source classes as dominant. Discovering no transient source would disfavor most known transient source classes as dominant. Our results aim to inform the design of upcoming detectors.

Summary

Primary author: FIORILLO, Damiano (Niels Bohr Institute, Copenhagen)

**Co-authors:** BUSTAMANTE, Mauricio (Niels Bohr Institute, Copenhagen); VALERA, Victor (Niels Bohr Institute, Copenhagen)

Presenter: FIORILLO, Damiano (Niels Bohr Institute, Copenhagen)

Session Classification: Multimessenger - 2