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The search for point-like neutrino sources with ANTARES and KM3NeT/ARCA telescopes

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The multi-messenger approach has recently paved the way for possible breakthroughs in our comprehension of high energy particle emission in the Universe. Neutrino telescopes are essential for highlighting the hadronic component of these phenomena, also testing possible correlation with known sources of gamma rays. Joint analyses of different telescopes results may provide enhanced sensitivity.

This contribution will present the combined analyses of the data collected by two neutrino telescopes located in the depths of the Mediterranean Sea: the ANTARES detector, operational for over 15 years off the coast of Toulon (France), and KM3NeT/ARCA, one of the two detectors constituting the next-generation neutrino telescope KM3NeT. ARCA is optimized for astrophysical neutrinos exceeding 1 TeV in energy and is currently collecting data while being under construction near Portopalo di Capo Passero (Italy). In this analysis, a catalog of approximately one hundred point-like and extended sources was carefully investigated for neutrino emissions: the list encompasses bright γ -ray emitters, galactic γ -ray sources displaying indications of a hadronic presence (TeVcat catalog), extragalactic sources as radio-loud AGNs and the most significant candidate sources studied by IceCube.

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