

Multimessenger Astronomy

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The realization of multimessenger astrophysics will open up a new field of exploration of the most energetic phenomena in the universe. Astrophysical messengers associated with each of the four fundamental forces reach detectors buried deep underground or underwater, spread across wide swaths of land, and orbiting high above us in space. Detecting coincident signals amongst these experiments in real time will herald the birth of high energy multimessenger astronomy and will enable us to begin exploring and understanding their astrophysical sources. The Astrophysical Multimessenger Observatory Network (AMON) is currently linking multiple current and future high-energy neutrino, cosmic ray, gamma ray and gravitational wave observatories into a single virtual system, facilitating near real-time coincidence searches for multimessenger astrophysical transients. AMON will generate alerts that will enable rapid follow-up of potential electromagnetic counterparts. In this talk, we will present the science case, design elements, partner observatories, and status of the AMON project, followed by examples of AMON-enabled multimessenger analyses with archival data.

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