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The Astrophysical Multimessenger Observatory Network

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The Astrophysical Multimessenger Observatory Network (AMON) is the first continuous, real-time system designed to enable the discovery of the sources of transient multimessenger signals. By sifting through sub-threshold event streams from several multimessenger facilities, and correlating them in real-time in search of coincident subthreshold events, AMON provides a significant enhancement in the effective aggregate sensitivity of the multimessenger facilities for a small fraction of the facilities' total cost. By distributing the positions of coincident events in real-time to follow-up facilities, AMON enables fast-response counterpart searches and studies across the electromagnetic spectrum. The existence and nature of such counterparts may prove decisive to establishing the existence of some of the first multimessenger sources. Finally, by spearheading the development of a community-based, shared infrastructure, AMON provides a unified, low-cost solution to coincident real-time analysis for all collaborations and their funding agencies.

In this talk, I will describe the AMON network, I will present the on-going subthreshold coincidence analyses to obtain new information about cosmic sources, and I will discuss the prospects of combining data from the electromagnetic, particle, and gravitational windows to advance high energy astrophysics into a new era.

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