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Title: Synergistic Science via Multimessenger Astrophysics with Gravitational waves

Gravitational-waves provide an unprecedented opportunity born of new data to expose cosmic puzzles using multiple astrophysical messengers. At the root of discovery is an in-depth understanding of the multifaceted interplay between more sensitive instruments and innovative data analysis approaches relying on all accessible data from a comprehensive mesh of cosmic messengers. For every discovery of a loud gravitational-wave signal, there are numerous weak fingerprints called subthreshold candidates, not sufficiently loud to claim a detection. With the proliferation of multimessenger science and subthreshold searches, coincident observation of more than two messengers (gravitational-waves, electromagnetic, particle) is inevitable. Whether the observed multimessenger candidate is a result of a single astrophysical event needs to be statistically evaluated. I will discuss the general Bayesian method for the optimal model-dependent search, which is scalable to any number and any kind of messengers, and applicable to any model and will discuss implications.