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**Optimizing the use of 3D information for Electromagnetic Follow-up of Advanced LIGO-Virgo Events** HSIN-YU CHEN, DANIEL HOLZ, University of Chicago, LVC COLLABORATION — As Advanced LIGO-Virgo turns on, we are entering the era of gravitational-wave astronomy. One of the most exciting scientific opportunities would be the joint observations of gravitational wave sources and their electromagnetic counterparts. A rapid directionally dependent distance estimation would allow telescopes to adjust the integration time depending on the expected distance along each direction on the sky, thereby saving resources and increasing the chance of detection. We discuss the savings in telescope time resulting from the 3D information from our low-latency gravitational-wave 3D reconstruction algorithm. The use of distance can be optimized for telescopes with different fields-of-view and sensitivities. Combining these distance estimates with galaxy catalogs, we explore the effects of incompleteness of the catalogs, the evolution of the event rates (stellar mass or star formation rate), and the uncertainties in galaxy redshift measurements.

Hsin-Yu Chen  
University of Chicago

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