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Reanalyzing the properties of GW170817 and GW190425 with higher order modes JACOB LANGE, University of Texas-Austin, RICHARD O'SHAUGHNESSY, Rochester Institute of Technology, KEVIN BARKETT, California Institute of Technology, SCOTT FIELD, University of Massachusetts-Dartmouth, VIJAY VARMA, Cornell University — On August 17, 2017 and April 25, 2019, the LIGO-Virgo Collaboration (LVC) detected its first and second significant binary neutron star systems (BNS) via gravitational wave radiation. The subsequent event and catalog papers to follow used state-of-the-art semi-analytical tidal models that included only the dominant (2,2) mode to estimate the parameters of these systems. Since then, more novel models have been developed to include subdominant modes in its waveform. In this talk, I present a reanalysis of these two events using two of these novel models: a hybrid NR surrogate that includes tidal terms (NRHybSur3dq8Tidal) and a newer version of the effetive-one-body model that includes adiabatic tides (TEOBResumS v2). These new analyses give some insight into the importance of subdominant modes in estimating the parameters of BNS systems.

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