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Observing universal tidal relations in neutron star binaries CARL-JOHAN HASTER, KATERINA CHATZIOANNOU, AARON ZIMMERMAN, Canadian Institute for Theoretical Astrophysics, KENT YAGI, University of Virginia — The tidal deformability of neutron stars holds precious information about matter at the most extreme scales, including the still unknown neutron star equation of state. In this talk, I'll show that by assuming a universal relation between the tidal deformabilities of the two neutron stars in a binary, and accounting for the uncertainty present in such a relation, one will arrive at a physically motivated measure of the tidal deformabilities of the neutron stars through observations of gravitational waves emitted from such systems. Compared to other approaches these deformabilities will be well constrained, and through the use of the universal relation this method will be applicable to all neutron star equations of state.

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