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More than the sum of its parts: combining parameterized tests of extreme gravity[1] HECTOR SILVA, NICOLAS YUNES, University of Illinois at Urbana-Champaign — The advent of the gravitational wave era is offering us a new arena to test Einstein's theory of General Relativity and to confront modifications to it against observations. On the one hand, these tests can place General Relativity on a firmer experimental ground, while on the other, any hint of a disagreement would imply a major revision in our understanding of gravity. In this presentation, we discuss recent results on a program to connect two parametrized formalism to test General Relativity, one in the strong-field regime of neutrons stars and another in the radiative regime of gravitational waves: the post-Tolman-Oppenheimer-Volkoff and the parametrized-post-Einsteinian formalisms. This unified framework open the doors towards theory-independent tests of gravity using both astronomical observations of neutron stars and gravitational wave observations.

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