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Title: Sharp density gradients in generalized coupling theories

Abstract: Sharp matter density gradients, such as those which may be present at the boundary of compact objects (neutron stars for instance), present difficulties in gravity theories containing auxiliary fields. In generalized coupling theories, which will be the focus of this talk, discontinuities in matter density profiles generically produce discontinuities in the effective metric minimally coupled to matter. On the other hand, the "Einstein frame" metric encoding the gravitational degrees of freedom is not discontinuous. To gain insight into this problem, a recent analysis of sharp (but smooth) density gradients in the MEMe model (a simple instance of a generalized coupling theory) was conducted—I describe the analysis and discuss its implications in this talk.