
Effective universality in quantum gravity

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Abstract

We investigate the asymptotic safety scenario for gravity-matter systems. These systems feature different avatars of the dynamical Newton's couplings, e.g. a gravitational self-coupling, a scalar-graviton coupling and a gluon-graviton coupling. We uncover an effective universality for the dynamical Newton's coupling on the quantum level: its momentum-dependent avatars are in remarkable quantitative agreement in the scaling regime of the UV fixed point. This emergence of effective universality is a strong indication for the physical nature of the UV fixed point and it provides a guiding principle for setting up future truncations.

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