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N-body simulations of modified gravity models

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N-body simulations have become an essential tool in cosmology, allowing for quantitative predictions of large-scale structure observables and hence greatly increasing the range of scales that can be used to test the underlying cosmological paradigm. I will present techniques and results of N-body simulations of the f(R) and DGP modified gravity models, which self-consistently take into account the non-linear screening mechanisms contained in these models. The screening mechanisms are essential to allow these models to pass Solar System constraints on gravity, and become relevant in the non-linear regime of large-scale structure.