Self-tuning of the cosmological constant in generalized Galileon/Horndeski theories

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A large bare cosmological constant entering the action can be dynamically screened to a tiny observed one in generalized Galileon or Horndeski theories. One just needs a dimensionful parameter not to be of the same order of magnitude as the vacuum energy density. However, only a very specific subclass of these models can also pass solar-system tests of gravity. When taking into account the renormalization of Newton's constant they predict, this reduces even more the space of allowed theories, but there still remain some which present all desired properties: a metric close enough to the Schwarzschild solution in the vicinity of the Sun, together with the cosmological screening of a large vacuum energy density. Regular black-hole solutions also exist in such models.