Geometric Foundations of Gravity 2025



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Ghosts and strong coupling in Bimetric MOND

Modified Newtonian dynamics (MOND) is a phenomenological theory which aims to explain dark matter. However, the theory is criticized for not being a good fit to observations at multiple scales and with lack of fundamental motivations. Bimetric MOND (BIMOND) is a theory with a fundamental relativistic action including two copies of Eintein-Hilbert terms (each equiped with a separate dynamical metric) and a function of a scalar constructed through contorsion (the difference of the two Levi-Civita connections). In this talk I will show that this theory is in fact not viable as a fundamental theory. This is shown through perturbation theory around Minkowski and Hamiltonian analysis around a very simple background.

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