Geometric Foundations of Gravity 2025



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Strong hyperbolicity in teleparallel gravity

We review the current state of the numerical relativity formalism for teleparallel theories of gravity and assess the hyperbolicity of the 3+1 decomposition of the equations of motion in the Hamiltonian formulation. For this, we analyse a simplified version of the analog to the ADM equations in the teleparallel equivalent of general relativity. We consider linear perturbations around a flat spacetime and impose these conditions in the tetrad and its conjugate momenta. We present the form of the 3+1 equations of motion and outline the procedure in order to consistently study their hyperbolicity properties.

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