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M. Minamitsuji: General relativistic solutions in the Minimal Theory of Bigravity

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We investigate general relativistic (GR) solutions in the Minimal Theory of Bigravity (MTBG). MTBG does not contain potentially problematic scalar and vector polarizations in the gravitational sectors and can be a promising model for the origin of the cosmic acceleration of the present day. We show that a pair of Schwarzschild-de Sitter spacetimes written in the spatially-flat coordinates is a solution in the self-accelerating branch of MTBG, and derive the conditions under which a slicing of the Schwarzschild-de Sitter solution is solution of the normal branch of MTBG. We also confirm that the self-accelerating branch of MTBG admits static and spherically symmetric GR stellar solutions with regular matter profile written in the spatially-flat coordinates, including neutron stars with arbitrary equations of state. We then study the dynamical processes in the self-accelerating branch of MTBG, i.e., gravitational collapse and propagation of the odd-parity black hole perturbations.

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