General Relativity and Quantum Cosmology

Stability of thin-shell wormholes supported by ordinary matter in Einstein-Maxwell-Gauss-Bonnet gravity

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Recently in (Phys. Rev. D 76, 087502 (2007) and Phys. Rev. D 77, 089903(E) (2008)) a thin-shell wormhole has been introduced in 5-dimensional Einstein-Maxwell-Gauss-Bonnet (EMGB) gravity which was supported by ordinary matter. We wish to consider this solution and investigate its stability. Our analysis shows that for the Gauss-Bonnet (GB) parameter $\alpha <0,$ stability regions form for a narrow band of finely-tuned mass and charge. For the case $\alpha >0$, we iterate once more that no stable, ordinary matter thin-shell wormhole exists.

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