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Spherical thin shells with charge in unimodular gravity

A broad family of spacetimes with spherically symmetric thin shells within unimodular gravity theory is introduced and the analysis of the dynamical stability for perturbations preserving the symmetry is done. Two different particular solutions are adopted for which the non-conservation of the energy-momentum tensor is allowed. In both scenarios, the charged thin-shell surrounds a vacuum region and the whole geometry has no event horizons nor singularities. Stable configurations are found for suitable values of the parameters. These results are compared with those corresponding to general relativity, showing some differences in the matter content and in the stability zones in the parameter space.

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