



EXOTIC COMPACT OBJECTS AND THE FATE OF THE LIGHT-RING INSTABILITY

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Ultracompact objects with light rings (LRs) but without an event horizon could mimic black holes (BHs) in their strong gravity phenomenology. But are such objects dynamically viable? Stationary and axisymmetric ultracompact objects under very generic assumptions must have at least one stable LR, which has been argued to trigger a spacetime instability; but its development and fate have been unknown. In this talk we revise some existence results for LRs and discuss the results of fully nonlinear numerical evolutions of ultracompact bosonic stars free of any other known instabilities. It is confirmed that LRs triggered an instability, identifying two possible fates: migration to nonultracompact configurations or collapse to BHs. Our results show that the LR instability is effective in destroying horizonless ultracompact objects that could be plausible BH imitators.