

The Modern Physics of Compact Stars and Relativistic Gravity

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The influence of an interacting vacuum energy on the gravitational collapse of a star fluid

To explain the accelerated expansion of the universe, models with interacting dark components (dark energy and dark matter) has been considered recently in the literature. Generally, the dark energy component is physically interpreted as the vacuum energy of the all fields that fill the universe. However, as the other side of the same coin, the influence of the vacuum energy in the gravitational collapse is a topic of scientific interest. Based in a simple assumption on the collapsed rate of the matter fluid density that is altered by the inclusion of a vacuum energy component that interacts with the matter fluid, we study the final fate of the collapse process and the related issue, the cosmic censorship conjecture. Besides, we briefly discuss the effective mass of the collapsed object.

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