Contribution ID: **5** Type: **not specified**

Nuclear theories used in compact stars in some modified gravity theories

Tuesday 19 August 2025 10:20 (25 minutes)

In this talk, I will be presenting the most recent published work, emphasizing more on the nuclear aspect. Then, I will shift my focus to some points that I realize from this work and some of my past works. The main points will be twofold. First, according to the works that I had done so far, nuclear matter models give a significant shift to the maximum mass of compact stars. Second, although modified gravity models can also do the same, some of them do not give significant shift compared to the nuclear matter. However, the main drawback of nuclear matter models is that it is not enough to study ultracompact stars, which is a mimic to black holes, and the reason why one study exotic matter for astrophysical objects.

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Session Classification: Researcher session