

Can self-interaction in supernova neutrinos cause changes in gravitational wave memory signals?

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Gravitational wave memory is a persistent non-oscillatory shift in the gravitational wave amplitude. Such effects are ubiquitous in astrophysical and cosmological cataclysmic events involving gravitational radiation. In this talk, we turn our attention to the case of a supernova neutrino burst generating the gravitational radiation. Previous studies along this line have demonstrated that a neutrino burst in such scenarios gives rise to a gravitational memory signal. Here, we specifically inquire about the alterations to the memory signal when neutrinos emitted from a supernova undergo self-interaction, presenting an avenue for indirectly detecting neutrino self-interaction.

Track type

Gravitational waves

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