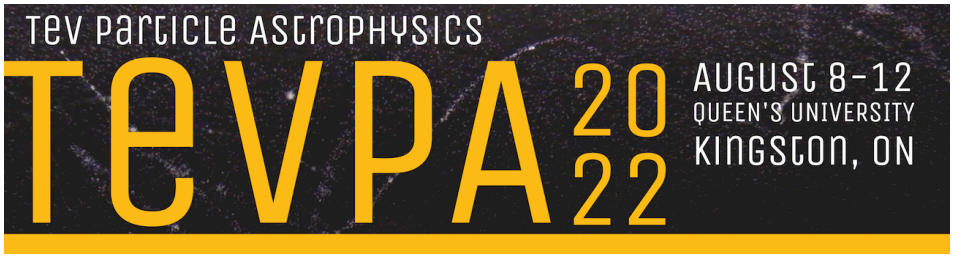

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Dark Matter Annihilations in Massive Stars: A New Lease on Life?

Thursday 11 August 2022 14:20 (20 minutes)

Stars whose initial mass is between approximately 150 and 240 $M_\odot$ face a fate of complete explosion in a pair instability supernova (PISN). However, by injecting energy into the star, it may be possible in some cases to avoid this fate. We outline conditions on this energy injection which can lead to the survival or incomplete explosion of the star, and we discuss how dark matter annihilations throughout a star may offer one mechanism to provide this energy. Finally, we begin to explore the range of energy conditions which may allow stars to avoid PISN.

Collaboration name

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