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Neutrino signal of collapse-induced thermonuclear supernovae

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We review the possibility that some or all core-collapse supernovae are collapse-induced thermonuclear explosions (CITEs), rather than neutrino-driven explosions. After a brief introduction, we focus on the neutrino signal and show that the neutrino burst of SN1987A is compatible with CITE and may hint for prompt black hole formation. Supernova constraints on new free-streaming particles (such as axions) must be revised in this scenario. We discuss predictions for the neutrino signal of the next Galactic core-collapse.