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Detonation Initiation in Type Ia Supernovae[1] GABRIEL CASABONA, ROBERT FISHER, Univ of Mass - Dartmouth, PRITOM MOZUMDAR, UC Davis — Type Ia supernovae play a crucial role as standardizable candles for cosmology, but their stellar progenitors remain mysterious. Underlying this mystery is a crucial physical process: the mechanism of detonation initiation in Type Ia supernovae. Using the FLASH4 code, simulations were run to explore detonation initiation under various initial conditions. Adaptive mesh refinement techniques were utilized in order to refine the limits of successful and unsuccessful detonations. Further research into this topic will clarify the mechanisms giving rise to Type Ia supernovae.

[1]Carbon Detonation Initiation in Highly Turbulent Electron Degenerate Matter

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