

Abstract Submitted  
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**Fluid Instabilities inside Astrophysical Explosions**<sup>1</sup> KE-JUNG CHEN, STAN WOOSLEY, UC Santa Cruz, ALEXANDER HEGER, Monash U, ANN ALMGREN, WEIQUN ZHENG, LBNL — We present our results from the simulations of fluid instabilities inside supernovae with a new radiation-hydrodynamic code, CASTRO. Massive stars are ten times more massive than Sun. Observational and theoretical studies suggest that these massive stars tend to end their lives with energetic explosions, so-called supernovae. Many fluid instabilities occur during the supernova explosions. The fluid instabilities can be driven by hydrodynamics, nuclear burning, or radiation. In this talk, we discuss about the possible physics of fluid instabilities found in our simulations and how the resulting mixing affects the observational signatures of supernovae.

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