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Toward Connecting Core-Collapse Supernova Theory with Observations: Nucleosynthetic Yields and Distribution of Elements in a 15 $M_\odot$ Blue Supergiant Progenitor with SN 1987A Energetics[1] TOMASZ PLEWA, TIMOTHY HANDY, Florida State University, ANDRZEJ ODRZYWOLEK, Jagiellonian University — We compute and discuss the process of nucleosynthesis in a series of core-collapse explosion models of a 15 solar mass, blue supergiant progenitor. We obtain nucleosynthetic yields and study the evolution of the chemical element distribution from the moment of core bounce until young supernova remnant phase. Our models show how the process of energy deposition due to radioactive decay modifies the dynamics and the core ejecta structure on small and intermediate scales. The results are compared against observations of young supernova remnants including Cas A and the recent data obtained for SN 1987A.

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