

Selected nuclear reactions in supernova explosions.

- - Supernova nucleosynthesis



Description: -

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Reference

General

Physics ThesesSelected nuclear reactions in supernova explosions.

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Notes: Thesis (Ph.D.), Dept. of Physics, University of Toronto

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Explosive nuclear astrophysics

The neutron density is extremely high, about 10^{22} - 10^{24} neutrons per cubic centimeter. It has also provided a new method for astronomical research. This is what happens at the centre of the Sun, where temperatures reach 15 million degrees Celsius.

RADIOACTIVITY

This research was supported by the DOE Office of Science. The fusion of hydrogen to form helium is the dominant nuclear reaction for most of a star's lifetime.

New insight into atomic nuclei may explain how supernovas formed elements crucial to humankind

We particularly emphasize the importance of the final carbon simmering phase preceding the final runaway and the role of the convective Urca process which will alter the immediate pre-supernova conditions in the exploding white dwarf. But this is a game of diminishing returns. In addition to Seweryniak, authors include A.

From nuclear multifragmentation reactions to supernova explosions

All the experiments were conducted in the cyclotron laboratory at UiO, where nuclear physicists can measure what happens when atomic nuclei collide with each other at very high speeds.

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