

The Nuclear Cycle that Powers the Stars: Fusion, Gravitational Collapse, and Dissociation

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ABSTRACT: The finding of an unexpectedly large source of energy from repulsive interactions between neutrons in the 2,850 known nuclides has challenged the assumption that H-fusion is the main source of energy that powers the Sun and other stars [1]. We show here that neutron repulsion in compact objects produced by the collapse of stars and collisions between galaxies may power more energetic astrophysical events (quasars, gamma ray bursts, and active galactic centers) that had been attributed to black holes before neutron repulsion was recognized. The universe may cycle nuclear matter between fusion, gravitational collapse, and dissociation (including neutron-emission) rather than evolve in one direction by fusion.

[1] <http://arxiv.org/abs/astro-ph/0510001>