

Abstract Submitted
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Laboratory Nuclear Astrophysics or The universe as seen from underground. JOHN E. ELLSWORTH, STEVEN E. JONES, SHANNON WALCH, MATTHEW R. NERDIN, Physics and Astronomy, Brigham Young University — Our sun emits 380 yottawatt, yet the nuclear reactant energies producing that power are very low (1 keV). These energies are so low, that replication of such reactions in the laboratory produce rates that are nearly impossible to detect. Unlike the historical efforts to understand stellar processes by extrapolating down from higher energy beam experiments, there are efforts to study reactions using low energy reactants. To do so requires specialized equipment and environments. The results indicate the need to understand the Coulomb screening effects of condensed matter in these processes. An explanation for heat production in planetary cores may also follow.

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