

Abstract Submitted  
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**An improved low-temperature equation of state model for integrated IFE target-chamber response simulations**<sup>1</sup> THAD HELTEMES, GREGORY MOSES, University of Wisconsin-Madison — A new quotidian equation of state model (QEOS) has been developed to perform integrated inertial fusion energy (IFE) target explosion-chamber response simulations. This QEOS model employs a scaled binding energy model for the ion EOS and utilizes both  $n$ - and  $\ell$ -splitting for determining the ionization state and electron EOS. This QEOS model, named BADGER, can perform both local thermodynamic equilibrium (LTE) and non-LTE EOS calculations. BADGER has been integrated with the 1-D radiation hydrodynamics code BUCKY to simulate the chamber response of an exploding indirect-drive deuterium-tritium (DT) target, xenon gas-filled chamber and tungsten first-wall armor. The simulated system is a prototypical configuration for the LIFE reactor study being conducted by Lawrence Livermore National Laboratory (LLNL).

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Thad Heltemes  
University of Wisconsin-Madison

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