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Calculations of fast electron transport through different materials at solid density using a robust hybrid code STEVE HUGHES, DAVID CHAPMAN, AWE — Development of a robust hybrid code is useful for efficient calculation of fast electron transport, in conjunction with a radiation hydrodynamics code. The code THOR has been developed for coupling to a fluid code in this fashion for modelling this fast electron population generated during short-pulse laser experiments. It is built on the hybrid philosophy of work by J.R. Davies, which provides an intuitive and relatively straightforward computational framework, and makes it easier to take advantage of parallelism for reducing noise in the solution. The basic algorithms of the code are described along with the approximations and limitations of the current implementation. Recent experiments by D. Hoarty at AWE have demonstrated a method of heating solid density Aluminium layers to hundreds of eV, buried at various depths in a plastic target. Application of the THOR code in reproducing these measurements is shown with encouraging results. The quality of the match to the data is discussed with layers placed at various depths as in the experiments, and with different laser sources. The problems of comparing the code outputs with the measurement technique used in the experiment are also described.

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