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Radiation Transport Through Inhomogeneous Materials PAUL KEITER, MARK GUNDERSON, Los Alamos National Laboratory, JOHN FOSTER, PAULA ROSEN, MARK TAYLOR, ANDREW COMLEY, AWE Aldermaston — Calculations of radiation transport in heated materials are greatly complicated by the presence of regions in which two or more materials are inhomogeneously mixed This phenomenon is important in inertial confinement fusion (ICF), where mixing can occur from instability growth and in astrophysical systems where density clumps can be found in star-forming regions and molecular clouds. We describe laboratory experiments to test modeling of radiation transport through inhomogeneous plasmas. A laser-heated hohlraum is used as a thermal source to drive radiation through polymer foam containing randomly-distributed gold particles. We present experimental measurements of radiation transport in homogeneous foam and an inhomogeneous foam-gold particle mixture with micron and sub micron gold particles. We also compare simulation results to the experiment.

Paul Keiter
Los Alamos National Laboratory

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