Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

A new immersed interface method applied to hydrodynamics of a fusion chamber[1] RICHARD KRAMER, CARLOS PANTANO, University of Illinois at Urbana-Champaign, GWEN LOOSMORE, ANDREW COOK, Lawrence Livermore National Laboratory — A new immersed interface technique is discussed for a high-order Cartesian fluid solver, with results presented from a range of problems. The new approach is designed to generate smooth fields in the ghost (fictitious) regions of the domain occupied by solid objects. A parallel implementation of this approach and its coupling to very complex geometries is discussed. We discuss some preliminary results for jet cooling inside a chamber containing Xenon at temperatures around 8000 K. The compressible, turbulent and radiative environment is modeled using the LLNL code Miranda with the new immersed interface technique used to represent the chamber walls.

[1]This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Richard Kramer
University of Illinois at Urbana-Champaign

Date submitted: 04 Aug 2010 Electronic form version 1.4