

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Gravitational Waves from Core-Collapse Supernova using CHIMERA: Models and Numerical Methods¹ PEDRO MARRONETTI, Florida Atlantic University, KONSTANTIN YAKUNIN, STEPHEN BRUENN, Florida Atlantic University, JOHN BLONDIN, North Carolina State University, AUSTIN CHERTKOW, University of Tennessee - Knoxville, CHARLOTTE DIRK, Florida Atlantic University, WILLIAM R. HIX, Oak Ridge National Laboratory, ERIC LENTZ, University of Tennessee - Knoxville, O.E. BRONSON MESSER, ANTHONY MEZZACAPPA, Oak Ridge National Laboratory — CHIMERA is a multi-dimensional code composed of three tightly coupled physics modules: VH1 used to evolve stellar gas hydrodynamics, MGFLD-TRANS which handles the neutrino transport, and XNET that describes the thermonuclear reactions. These are complemented with a sophisticated equation of state for nuclear matter (Lattimer-Swesty) and a self-gravity solver capable of an approximation to general-relativistic gravity. We will present the latest simulations of core-collapse supernova for different-mass progenitors. These models are evolved for up to one second in all cases, making them some of longest term simulations of their kind.

¹ORNL is managed by UT-Battelle, LLC, for the U.S. Department of Energy under contract DE-AC05-00OR22725.

Pedro Marronetti
Florida Atlantic University

Date submitted: 27 Oct 2009

Electronic form version 1.4