

Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Gravitational Wave and Neutrino Signals from Rotating General-Relativistic Stellar Collapse¹ ERNAZAR ABDIKAMALOV, CHRISTIAN D. OTT, EVAN O'CONNOR, CHRISTIAN REISSWIG, PETER KALMUS, California Institute of Technology, FRANK LOEFFLER, Louisiana State University, ADAM BURROWS, Princeton University, STEVE DRASCO, California Polytechnic State University, ERIK SCHNETTER, Perimeter Institute — We perform 3+1 general relativistic simulations of rotating iron core collapse in massive presupernova stars, employing a finite-temperature nuclear equation of state and a multi-species neutrino leakage scheme, that allows us to capture the effects of deleptonization, neutrino cooling and heating in the postbounce phase. Studying a wide range of progenitor rotation rates and two different presupernova models, we explore the effect of neutrino leakage on the postbounce dynamics and gravitational wave emission. We also study postbounce oscillation modes of protoneutron stars and investigate their imprint on neutrino and gravitational wave signal.

¹National Science Foundation

Ernazar Abdikamalov
California Institute of Technology

Date submitted: 06 Jan 2012

Electronic form version 1.4