

Abstract Submitted  
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**Dynamics and Gravitational Wave Signature of Collapsar Formation**<sup>1</sup> CHRISTIAN D. OTT, CHRISTIAN REISSWIG, TAPIR, California Institute of Technology, ERIK SCHNETTER, Perimeter Institute, EVAN O’CONNOR, TAPIR, California Institute of Technology, ULRICH SPERHAKE, CSIC-IEEC Barcelona, FRANK LOEFFLER, PETER DIENER, ERNAZAR ABDIKAMALOV, CCT, Louisiana State University, IAN HAWKE, School of Mathematics, University of Southampton, ADAM BURROWS, Department of Astrophysical Sciences, Princeton University — We present results from 3+1 general relativistic simulations of rotating core collapse in the context of the collapsar model for long gamma-ray bursts. We employ a realistic progenitor, rotation based on results of stellar evolution calculations, and a simplified equation of state. Our simulations track self-consistently collapse, bounce, the postbounce phase, black hole formation, and the subsequent early hyperaccretion phase. We extract gravitational waves from the spacetime curvature and identify a unique gravitational wave signature associated with the early phase of collapsar formation.

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