

Abstract Submitted
for the APR05 Meeting of
The American Physical Society

Sorting Category: C5. (C)

Evolution of 3D Boson Stars with Waveform Extraction RUXANDRA BONDARESCU, Cornell University, NY, JAYASHREE BALAKRISHNA, Harris-Stowe State College, MO, GREGORY DAUES, NCSA, FRANCISCO GUZMAN, EDWARD SEIDEL, Louisiana State University, LA; Albert Einstein Institute, Golm, Germany — This talk will present results from a study of boson stars under nonspherical perturbations using a fully general-relativistic 3D code based on the Cactus Computational Toolkit. We study the evolution of stable, critical and unstable boson stars subjected to various types of nonspherical perturbations and analyze the emitted gravitational waves. We calculate the Zerilli and Newman-Penrose Ψ_4 gravitational waveforms and study the quasinormal mode content of the numerical waveforms using predicted QNM frequencies from perturbation theory calculations of Yoshida, Eriguchi and Futamase. Our results show that the waveforms accurately display the strong damping predicted for quasinormal modes of boson stars. The apparent horizons formed from perturbed unstable star collapse were observed to be slightly nonspherical when initially detected and became more spherical as the system evolved.

Prefer Oral Session
 Prefer Poster Session

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Date submitted: 14 Jan 2005

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