

Dark Matter and Stars: Multi-Messenger Probes of Dark Matter and Modified Gravity

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Boson star head-on collisions

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Colliding boson stars (BS) can be regarded as one potential source for astrophysical gravitational wave signals. Templates for the detection of such signals are now being constructed, which makes accurate calculations of such more important. In contrast to fluid matter, BS solutions are smooth, which makes them, in some sense, an optimal domain for the application of pseudospectral numerical methods. Simulations so far have been limited due to the difficulty in building initial data containing two BSs. Most groups undergoing such studies either use a simple superposition of two boosted BSs or an improved version thereof. In this talk I will present first results of BS head-on collisions that start from constraint solved initial data.

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