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Progress toward simulating merging black holes with SpECTRE[1]
GEOFFREY LOVELACE, California State University, Fullerton, SIMULATING EXTREME SPACETIMES COLLABORATION COLLABORATION — SpECTRE is a next-generation numerical relativity code that is currently in development by the Simulating eXtreme Spacetimes collaboration. By combining a Discontinuous Galerkin method with task-based paralleism, SpECTRE will take advantage of future exascale computing to model merging black holes and neutron stars with significantly improved accuracy compared to todays state-of-the-art. While the benefits of SpECTREs approach are most pronounced for simulations involving matter, they also will enable new numerical-relativity models of merging black holes that are longer and more accurate, particularly in regions of the parameter space that are especially computationally demanding, such as high mass ratios. In this talk, I will present an update on SpECTREs current capabilities for simulating dynamical, vacuum spacetimes, and I will discuss progress toward the goal of enabling SpECTRE to simulate merging black holes.

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