A discontinuous Galerkin elliptic solver with task-based parallelism for the SpECTRE code NILS LEIF FISCHER, Max Planck Institute for Gravitational Physics (Albert Einstein Institute), Am Mhlenberg 1, Potsdam 14476, Germany, SIMULATING EXTREME SPACETIMES (SXS) COLLABORATION — I present the solver for linear and nonlinear elliptic partial differential equations for SpECTRE, the next-generation numerical relativity code currently in development by the SXS collaboration. The solver combines nodal discontinuous Galerkin methods and task-based parallelism to target challenging elliptic problems in numerical relativity and beyond. In particular, I report on first results solving for black-hole binary and neutron-star binary initial data using our new numerical technology and I demonstrate the code's ability to scale to the capacity of the Minerva supercomputer at AEI Potsdam.

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