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LSU CCT Announces Third Software Release for Relativistic Astrophysics Research

The LSU Center for Computation & Technology announces the third release of the Einstein Toolkit, code name Curie. The Einstein Toolkit is an open, community-developed software infrastructure for relativistic astrophysics research and education. This release improves support for dealing with the equation of state by providing a new interface called EOS Omni. Support has also been added for tabulated, microphysical EOSs in the process. Bug fixes accumulated since the previous release have been included, and the test suites have been checked using OpenMP. The Einstein Toolkit is a collection of software components and tools for simulating and analyzing general relativistic astrophysical systems that builds on numerous software efforts in the numerical relativity community, including CactusEinstein, the Carpet AMR infrastructure, and the relativistic hydrodynamics code GRHydro, which is an updated and extended version of the public release of the Whisky code.

The Cactus Framework is used as the underlying computational infrastructure providing large-scale parallelization, general computational components, and a model for collaborative, portable code development. The toolkit includes modules to build complete codes for simulating black hole spacetimes as well as systems governed by relativistic hydrodynamics. Current development is targeted at providing additional infrastructure for general relativistic magnetohydrodynamics.

The Einstein Toolkit is primarily supported by the National Science Foundation. The toolkit consortium comprises several international universities, laboratories, and research centers. The Einstein Toolkit Consortium Curie release team members are: Gabrielle Allen, Peter Diener, Frank Löffler, Eric Seidel, and Michael Thomas, LSU; Erik Schnetter, Perimeter Institute for Theoretical Physics/LSU; Eloisa Bentivegna and Ian Hinder, Max-Planck-Institute for Gravitational Physics; Tanja Bode and Roland Haas, Georgia Tech; Bruno Mundim, Rochester Institute of Technology; and Christian D. Ott, California Institute of Technology.

For more information about using or contributing to the Einstein Toolkit or to join the Einstein Toolkit Consortium, please visit <http://einstein toolkit.org>.

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