

# Carpet Publications

---

## Background Publications and Web Pages

1. T. Goodale, G. Allen, G. Lanfermann, J. Massó, T. Radke, E. Seidel, and J. Shalf, *The Cactus framework and toolkit: Design and applications*, in *Vector and Parallel Processing – VECPAR'2002, 5th International Conference, Lecture Notes in Computer Science* (Springer, Berlin, 2003), URL <http://edoc.mpg.de/3341>.
2. E. Schnetter, P. Diener, E. N. Dorband, and M. Tiglio, *A multi-block infrastructure for three-dimensional time-dependent numerical relativity*, *Class. Quantum Grav.* **23**, S553 (2006), arXiv:gr-qc/0602104, URL <http://arxiv.org/abs/gr-qc/0602104>.
3. E. Schnetter, S. H. Hawley, and I. Hawke, *Evolutions in 3d numerical relativity using fixed mesh refinement*, *Class. Quantum Grav.* **21**, 1465 (2004), arXiv:gr-qc/0310042, URL <http://arxiv.org/abs/gr-qc/0310042>.
4. *Mesh refinement with Carpet*, URL <http://www.carpetcode.org/>.
5. *Cactus Computational Toolkit*, URL <http://www.cactuscode.org/>.

---

## Publications in Refereed Journals

---

### Book Chapters

1. E. Schnetter, C. D. Ott, G. Allen, P. Diener, T. Goodale, T. Radke, E. Seidel, and J. Shalf, *Cactus Framework: Black holes to gamma ray bursts*, in *Petascale Computing: Algorithms and Applications*, edited by D. A. Bader (Chapman & Hall/CRC, 2007), Computational Science Series, chap. 24, pp. 507–528, ISBN 9781584889090, arXiv:0707.1607 [cs.DC], URL <http://arxiv.org/abs/0707.1607>.

---

### Theses

1. C. Reisswig, *Binary black hole mergers and novel approaches to gravitational wave extraction in numerical relativity*, Ph.D. thesis, Leibniz Universität Hannover (2010), URL [http://www.nullinfinity.net/~reisswig/phd\\_thesis\\_published\\_christian\\_reisswig.pdf](http://www.nullinfinity.net/~reisswig/phd_thesis_published_christian_reisswig.pdf).
2. J. Seiler, *Numerical simulation of binary black hole spacetimes and a novel approach to outer boundary conditions*, Ph.D. thesis, Gottfried Wilhelm Leibniz Universität Hannover (2010), URL <http://dl.dropbox.com/u/2021645/thesis.pdf>.
3. O. Korobkin, *Non-axisymmetric instabilities in self-gravitating tori around black holes, and solving Einstein constraints with superconvergent finite element methods*, Ph.D. thesis, Louisiana State University (2010), URL <http://etd.lsu.edu/docs/available/etd-11122010-153530/>.
4. E. Pazos, *Numerical studies on new techniques for gravitational wave extraction and binary black hole simulations*, Ph.D. thesis, University of Maryland (2009), URL <http://hdl.handle.net/1903/9974>.

5. T. Bode, *The robustness of binary black hole mergers and waveforms*, Ph.D. thesis, Pennsylvania State University (2009), URL <http://etda.libraries.psu.edu/theses/approved/WorldWideIndex/ETD-4094/index.html>.
6. E. Bentivegna, *Ringing in unison: exploring black hole coalescence with quasinormal modes*, Ph.D. thesis, Pennsylvania State University (2008), URL <http://etda.libraries.psu.edu/theses/approved/WorldWideIndex/ETD-2570/index.html>.
7. M. Jasiulek, *Spin measures on isolated and dynamical horizons in numerical relativity*, Master's thesis, Humboldt-Universität zu Berlin (2008).
8. E. N. Dorband, *Computing and analyzing gravitational radiation in black hole simulations using a new multi-block approach to numerical relativity*, Ph.D. thesis, Louisiana State University (2007), URL <http://etd.lsu.edu/docs/available/etd-03202007-163153/>.
9. W. Kastaun, *Developing a code for general relativistic hydrodynamics with application to neutron star oscillations*, Ph.D. thesis, Universität Tübingen (2007), URL <http://tobias-lib.uni-tuebingen.de/volltexte/2007/2803/>.
10. G. M. Manca, *Dynamical instabilities in rapidly rotating neutron star models*, Ph.D. thesis, Università di Parma (2007).
11. C. D. Ott, *Stellar iron core collapse in  $\{3+1\}$  general relativity and the gravitational wave signature of core-collapse supernovae*, Ph.D. thesis, Universität Potsdam (2007), URL [http://stellarcollapse.org/papers/thesis\\_final.pdf](http://stellarcollapse.org/papers/thesis_final.pdf).
12. A. Zenginoğlu, *A conformal approach to numerical calculations of asymptotically flat spacetimes*, Ph.D. thesis, Universität Potsdam (2007), arXiv:0711.0873 [gr-qc], URL <http://arxiv.org/abs/0711.0873>.
13. F. Löffler, *Numerical simulations of neutron star-black hole mergers*, Ph.D. thesis, Universität Potsdam (2006), URL <http://opus.kobv.de/ubp/volltexte/2006/774/>.
14. S. Madiraju, *Performance profiling with Cactus benchmarks*, Master's thesis, Louisiana State University (2006), URL [http://www.cactuscode.org/Articles/Cactus\\_Madiraju06.pdf](http://www.cactuscode.org/Articles/Cactus_Madiraju06.pdf).
15. B. Zink, *Black hole formation from non-axisymmetric instabilities in quasi-toroidal stars*, Ph.D. thesis, Technische Universität München (2006), URL <http://nbn-resolving.de/urn/resolver.pl?urn=urn:nbn:de:bvb:91-diss20060623-1915123970>.
16. F. Herrmann, *Evolution and analysis of binary black hole spacetimes*, Ph.D. thesis, Universität Potsdam (2005).
17. M. Koppitz, *Numerical studies of black hole initial data*, Ph.D. thesis, Universität Potsdam (2004), URL <http://opus.kobv.de/ubp/volltexte/2005/134/>.

---

## Conference Proceedings and Technical Reports

1. B. Zink, N. Stergioulas, I. Hawke, C. D. Ott, E. Schnetter, and E. Müller, *Rotational instabilities in supermassive stars: a new way to form supermassive black holes*, in *International Scientific Workshop on Cosmology and Gravitational Physics, Thessaloniki, December 15-16, 2005*, edited by N. K. Spyrou, N. Stergioulas, and C. Tsagas (ZITI, 2006), pp. 155–160.

2. L. Rezzolla, L. Baiotti, B. Giacomazzo, D. Link, and J. A. Font, *Accurate evolutions of unequal-mass neutron-star binaries: properties of the torus and short GRB engines* (2010), arXiv:1001.3074 [gr-qc], URL <http://arxiv.org/abs/1001.3074>.
3. I. Hinder, *The current status of binary black hole simulations in numerical relativity* (2010), arXiv:1001.5161 [gr-qc], URL <http://arxiv.org/abs/1001.5161>.
4. O. Korobkin, E. B. Abdikamalov, E. Schnetter, N. Stergioulas, and B. Zink, *Stability of general-relativistic accretion disks* (2010), arXiv:1011.3010v, URL <http://arxiv.org/abs/1011.3010>.
5. U. Sperhake, V. Cardoso, F. Pretorius, E. Berti, T. Hinderer, and N. Yunes, *Ultra-relativistic grazing collisions of black holes* (2010), arXiv:1003.0882 [gr-qc], URL <http://arxiv.org/abs/1003.0882>.
6. G. Corvino, L. Rezzolla, S. Bernuzzi, R. D. Pietri, and B. Giacomazzo, *On the shear instability in relativistic neutron stars* (2010), arXiv:1001.5281 [gr-qc], URL <http://arxiv.org/abs/1001.5281>.
7. M. Campanelli, C. O. Lousto, B. C. Mundim, H. Nakano, Y. Zlochower, and H.-P. Bischof, *Advances in simulations of generic black-hole binaries* (2010), arXiv:1001.3834 [gr-qc], URL <http://arxiv.org/abs/1001.3834>.
8. M. Zilhão, H. Witek, U. Sperhake, V. Cardoso, L. Gualtieri, C. Herdeiro, and A. Nerozzi, *Numerical relativity for  $d$  dimensional axially symmetric space-times: formalism and code tests* (2010), arXiv:1001.2302 [gr-qc], URL <http://arxiv.org/abs/1001.2302>.
9. C. O. Lousto, H. Nakano, Y. Zlochower, and M. Campanelli, *Intermediate mass ratio black hole binaries: Numerical relativity meets perturbation theory* (2010), arXiv:1001.2316 [gr-qc], URL <http://arxiv.org/abs/1001.2316>.
10. B. J. Kelly, W. Tichy, Y. Zlochower, M. Campanelli, and B. Whiting, *Post-newtonian initial data with waves: Progress in evolution* (2009), arXiv:0912.5311 [gr-qc], URL <http://arxiv.org/abs/0912.5311>.
11. M. D. Duez, *Numerical relativity confronts compact neutron star binaries: a review and status report* (2009), arXiv:0912.3529 [astro-ph.HE], URL <http://arxiv.org/abs/0912.3529>.
12. B. D. Farris, Y. T. Liu, and S. L. Shapiro, *Binary black hole mergers in gaseous environments: "binary Bondi" and "binary Bondi-Hoyle-Lyttleton" accretion* (2009), arXiv:0912.2096 [gr-qc], URL <http://arxiv.org/abs/0912.2096>.
13. D. Pollney, C. Reisswig, E. Schnetter, N. Dorband, and P. Diener, *High accuracy binary black hole simulations with an extended wave zone* (2009), arXiv:0910.3803 [gr-qc], URL <http://arxiv.org/abs/0910.3803>.
14. P. Ajith, M. Hannam, S. Husa, Y. Chen, B. Brügmann, N. Dorband, D. Müller, F. Ohme, D. Pollney, C. Reisswig, L. Santamaría, and J. Seiler, *"complete" gravitational waveforms for black-hole binaries with non-precessing spins* (2009), arXiv:0909.2867 [gr-qc], URL <http://arxiv.org/abs/0909.2867>.
15. G. Lovelace, Y. Chen, M. Cohen, J. D. Kaplan, D. Keppel, K. D. Matthews, D. A. Nichols, M. A. Scheel, and U. Sperhake, *Momentum flow in black-hole binaries: II. Numerical simulations of equal-mass, head-on mergers with antiparallel spins* (2009), arXiv:0907.0869 [gr-qc], URL <http://arxiv.org/abs/0907.0869>.

16. J. Healy, P. Laguna, R. A. Matzner, and D. M. Shoemaker, *Final mass and spin of merged black holes and the golden black hole* (2009), arXiv:0905.3914 [gr-qc], URL <http://arxiv.org/abs/0905.3914>.
17. C. O. Lousto, M. Campanelli, and Y. Zlochower, *Remnant masses, spins and recoils from the merger of generic black-hole binaries* (2009), arXiv:0904.3541 [gr-qc], URL <http://arxiv.org/abs/0904.3541>.
18. S. Bernuzzi, L. Baiotti, G. Corvino, R. D. Pietri, and A. Nagar, *Gravitational-wave extraction from neutron-star oscillations* (2009), arXiv:0902.2720 [gr-qc], URL <http://arxiv.org/abs/0902.2720>.
19. H. Nakano, M. Campanelli, C. O. Lousto, and Y. Zlochower, *Comparison of post-Newtonian and numerical evolutions of black-hole binaries* (2009), arXiv:0901.3861 [gr-qc], URL <http://arxiv.org/abs/0901.3861>.
20. J. Tao, G. Allen, I. Hinder, E. Schnetter, and Y. Zlochower, *XiRel: Standard benchmarks for numerical relativity codes using Cactus and Carpet*, Tech. Rep. 5, Center for Computation & Technology, Louisiana State University (2008), URL <http://www.cct.lsu.edu/CCT-TR/CCT-TR-2008-5>.
21. I. Hinder, F. Herrmann, P. Laguna, and D. Shoemaker, *Comparisons of eccentric binary black hole simulations with post-Newtonian models* (2008), arXiv:0806.1037 [gr-qc], URL <http://arxiv.org/abs/0806.1037>.
22. J. G. Baker, W. D. Boggs, J. M. Centrella, B. J. Kelly, S. T. McWilliams, and J. R. van Meter, *Gravitational waves from black-hole mergers*, in *Proceedings of the 2007 Spring Symposium of the Space Telescope Science Institute (Baltimore, MD)* (2007), p. (to be published), arXiv:0708.4202 [astro-ph], URL <http://arxiv.org/abs/0708.4202>.
23. L. Baiotti, I. Hawke, L. Rezzolla, and E. Schnetter, *Details on the gravitational-wave emission from rotating gravitational collapse in 3D*, in *XXIXth Spanish Relativity Meeting (E.R.E. 2006)* (2007), vol. 66 of *J. Phys.: Conf. Ser.*, p. 012045, URL <http://stacks.iop.org/JPCConf/66/012045>.
24. U. Sperhake, *Black-hole binary evolutions with the LEAN code*, in *XXIXth Spanish Relativity Meeting (E.R.E. 2006)* (2007), vol. 66 of *J. Phys.: Conf. Ser.*, p. 012049, URL <http://stacks.iop.org/JPCConf/66/012049>.
25. J. A. Font, *Current status of relativistic core collapse simulations*, in *XXIXth Spanish Relativity Meeting (E.R.E. 2006)* (2007), vol. 66 of *J. Phys.: Conf. Ser.*, p. 012063, URL <http://stacks.iop.org/JPCConf/66/012063>.
26. U. Sperhake, B. Brügmann, J. González, M. Hannam, and S. Husa, *Head-on collisions of different initial data*, in *Proceedings of the 11th Marcel Grossmann Meeting (MG11) in Berlin, Germany, July 23-29, 2006* (2007), arXiv:0705.2035 [gr-qc], URL <http://arxiv.org/abs/0705.2035>.
27. B. Zink, N. Stergioulas, I. Hawke, C. D. Ott, E. Schnetter, and E. Müller, *Fragmentation of general relativistic quasi-toroidal polytropes*, in *Proceedings of the 11th Marcel Grossmann Meeting (MG11) in Berlin, Germany, July 23-29, 2006* (2007), arXiv:0704.0431 [gr-qc], URL <http://arxiv.org/abs/0704.0431>.

28. B. Zink, N. Stergioulas, I. Hawke, C. D. Ott, E. Schnetter, and E. Müller, *Supermassive black hole formation through rotational instabilities*, in *12th Conference on Recent Developments in Gravity (NEB XII)* (2007), vol. 68 of *J. Phys.: Conf. Ser.*, p. 012050, URL <http://stacks.iop.org/JPCConf/68/012050>.