

Publications

STUART L. SHAPIRO

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3. T. W. Baumgarte and S. L. Shapiro, *Numerical Relativity: Solving Einstein’s Equations on the Computer*, Cambridge University Press, Cambridge, (720 pgs.) (2010).

Computer Films, Videos and DVDs *

1. S.L. Shapiro and S.A. Teukolsky, *Relativistic Star Clusters on the Computer*, an 18 minute computer-generated color film produced at the Cornell National Supercomputer Facility (1985).
2. S.L. Shapiro and S.A. Teukolsky, *Computer Simulations of Relativistic Star Clusters*, a 7 minute computer-generated color film produced at Digital Productions, Culver City, California (1986).
3. S.L. Shapiro and S.A. Teukolsky, *Simulations of Axisymmetric, Newtonian Star Clusters*, a 17 minute computer-generated color video produced at the Cornell National Supercomputer Facility (1988).
4. L.I. Petrich, S.L. Shapiro, R.F. Stark and S.A. Teukolsky, *Accretion Onto a Moving Black Hole*, an 11 minute computer-generated color video produced at the Cornell National Supercomputer Facility (1988).
5. S.L. Shapiro and S.A. Teukolsky, *Potential Flows in General Relativity*, a 15 minute computer-generated color video produced at the Cornell National Supercomputer Facility (1989).
6. S.L. Shapiro and S.A. Teukolsky, *Stellar Collapse to a Black Hole: Thermal Radiation Spectrum*, a 12 minute computer-generated color video produced at the Cornell National Supercomputer Facility (1990).

7. S.L. Shapiro and S.A. Teukolsky, *Formation of Black Holes and Naked Singularities*, a 10 minute computer-generated color video produced at the Cornell National Supercomputer Facility (1991).
8. S.L. Shapiro and S.A. Teukolsky, *Collisions of Relativistic Clusters and the Formation of Black Holes*, a 14 minute computer-generated color video produced at the Cornell National Supercomputer Facility (1992).
9. S.L. Shapiro and S.A. Teukolsky, *Collapse and Collisions of Relativistic Clusters and the Formation of Black Holes*, a 29 minute computer-generated color video produced at the Cornell National Supercomputer Facility (1993).
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15. S.L. Shapiro, *Binary-Induced Gravitational Collapse: A Trivial Example*, a 7:30 minute computer-generated color video produced at the National Center for Supercomputing Applications (1998).
16. M.D. Duez, E.T. Engelhard, J.M. Fregeau, K.M Hufenberger and S.L. Shapiro, *Binary-Induced Collapse of a Compact, Collisionless Cluster*, an 11:35 minute computer-generated color video produced at the National Center for Supercomputing Applications (1999).
17. M. Shibata, T.W. Baumgarte and S.L. Shapiro, *Stability and Collapse of Rapidly Rotating, Supramassive Neutron Stars*, an 8:15 minute computer-generated color video produced at the National Center for Supercomputing Applications (1999).
18. M. Shibata, T.W. Baumgarte and S.L. Shapiro, *Differentially Rotating Hypermassive Neutron Stars*, a 13:18 minute computer-generated color video produced at the National Center for Supercomputing Applications (2000).

19. M. Duez, T.W. Baumgarte and S.L. Shapiro, *Computing the Complete Gravitational Wavetrain from Relativistic Binary Inspiral*, an 11:14 minute computer-generated color video produced at the National Center for Supercomputing Applications (2001).
20. H.-J. Yo, T.W. Baumgarte and S.L. Shapiro, *Gravitational Wavetrains in the Quasi-Equilibrium Approximation: A Model Problem in Relativistic Scalar Gravitation*, a 17:00 minute computer-generated color video produced at the National Center for Supercomputing Applications (2001).
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23. J.N. Cook, S.L. Shapiro and B.C. Stephens, *Magnetic Braking and Viscous Damping in Differentially Rotating Stars*, a 19:10 minute computer-generated color video and DVD produced at the National Center for Supercomputing Applications (2004).
24. M.D. Duez, S.L. Shapiro and H.-J. Yo, *Relativistic Hydrodynamic Evolutions with Black Hole Excision*, a 29:09 minute computer-generated color video and DVD produced at the National Center for Supercomputing Applications (2005).
25. M.D. Duez, Y.-T. Liu, S.L. Shapiro and B.C. Stephens, *General Relativistic Hydrodynamics with Viscosity: Contraction, Collapse, and Disk Formation*, a 58:50 minute computer generated color video and DVD produced at the National Center for Supercomputing Applications (2005).
26. M.D. Duez, Y.-T. Liu, S.L. Shapiro, B.C. Stephens and M. Shibata, *Evolution of Magnetized, Differentially Rotating Neutron Stars: Simulations in Full General Relativity*, a 30:58 minute computer generated DVD produced at the National Center for Supercomputing Applications (2006).
27. M. Shibata, Y.-T. Liu, S.L. Shapiro, and B.C. Stephens, *Magnetorotational Collapse of Massive Stellar Cores to Neutron Stars: Simulations in Full General Relativity*, a 17:05 minute computer generated DVD produced at the National Center for Supercomputing Applications (2007).
28. Y.-T. Liu, S.L. Shapiro and B.C. Stephens, *Magnetorotational Collapse of Very Massive Stars to Black Holes: Simulations in Full General Relativity*, a 44:18 minute computer generated DVD produced at the National Center for Supercomputing Applications (2007).
29. Z.B. Etienne, Y.-T. Liu, and S.L. Shapiro, *Black Hole-Black Hole Binary Merger in Full General Relativity*, a 7:50 minute computer generated DVD produced at the National Center for Supercomputing Applications (2008).

30. Z.B. Etienne, J.A. Faber, Y.-T. Liu, S.L. Shapiro, K. Taniguchi and T.W. Baumgarte, *Black Hole-Neutron Star Binary Mergers in Full General Relativity: Preliminary Simulations*, a 9:48 minute computer generated DVD produced at the National Center for Supercomputing Applications (2008).
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32. Z.B. Etienne, Y.-T. Liu, T.W. Baumgarte and S.L. Shapiro, *Black Hole-Neutron Star Binary Mergers: Effects of Black Hole Spin*, a 37:26 minute computer generated DVD produced at the National Center for Supercomputing Applications (2009).
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34. Z.B. Etienne, Y.-T. Liu, S.L. Shapiro and T. W. Baumgarte, *General Relativistic Simulations of Compact Binary Mergers: 3-D Renderings*, a 28:53 minute computer generated DVD produced at the National Center for Supercomputing Applications (2010).
35. B.D. Farris, Y.-T. Liu and S.L. Shapiro, *Binary Black Hole Mergers in Gaseous Disks: Simulations in General Relativity*, a 42:07 minute computer generated DVD produced at the National Center for Supercomputing Applications (2011).
36. Z.B. Etienne, Y.-T. Liu, V. Paschalidis and S.L. Shapiro, *Black Hole-Neutron Star Binary Mergers: Effects of Tilted Magnetic Fields*, a 34:58 minute computer generated DVD produced at the National Center for Supercomputing Applications (2012).
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40. R. Gold, V. Paschalidis, Z. B. Etienne, S.L. Shapiro and H. P. Pfeiffer, *Accretion Disks Around Binary Black Holes of Unequal Mass: GRMHD Simulations Near Decoupling*, a 21.12 minute computer generated DVD produced at the Department of Physics, UIUC (2014).

41. R. Gold, V. Paschalidis, Z. B. Etienne, S.L. Shapiro and H. P. Pfeiffer, *Accretion Disks Around Binary Black Holes of Unequal Mass: GRMHD Simulations of Post-decoupling and Merger*, a 6:21 minute computer generated movie produced at the Department of Physics, UIUC (2015).
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* see <http://tinyurl.com/shapiromovies> to view 14-45