

Publication List of Alan Calder

Refereed Publications

28. *Three-Dimensional Simulations of the Deflagration Phase of the Gravitationally Confined Detonation Model of Type Ia Supernovae.* G. C. Jordan IV, R. T. Fisher, D. M. Townsley, A. C. Calder, C. Graziani, S. M. Asida, D. Q. Lamb, and J. W. Truran. *ApJ*, in press.
27. *Tera-scale Turbulence Computation on BG/L Using the FLASH3 Code.* R. Fisher, S. Abarzhi, K. Antypas, S. M. Asida, A. C. Calder, F. Cattaneo, P. Constantin, A. Dubey, I. Foster, J. B. Gallagher, M. K. Ganapathy, C.C. Glendenin, L. Kadanoff, D.Q. Lamb, S. Needham, M. Papka, T. Plewa, L.B. Reid, P. Rich, K. Riley, and D. Sheeler. *IBM J. Res. & Dev.* **52**, 127, DOI: 10.1147/rd.521.0127, 2008
26. *Flame Evolution During Type Ia Supernovae and the Deflagration Phase in the Gravitationally Confined Detonation Scenario.* D. M. Townsley, A. C. Calder, S. M. Asida, I. Seitenzahl, F. Peng, N. Vladimirova, D. Q. Lamb, and J. Truran. *ApJ*, **668**, 1118, 2007
25. *Capturing the Fire: Flame Energetics and Neutronization for Type Ia Supernovae.* A. C. Calder, D. M. Townsley, O. E. B. Messer, I. Seitenzahl, F. Peng, E. F. Brown, N. Vladimirova, J. Truran, and D. Q. Lamb. *ApJ*, **656**, 313, 2007
24. *The Late-Time Behavior of the Single-mode Rayleigh-Taylor Problem.* P. Ramaprabhu, G. Dimonte, A. C. Calder, and B. Fryxell, *Phys. Rev. E*, **74**, 066308, 2006
23. *Scientific Applications on the Massively Parallel BG/L Machine.* K. Antypas, A.C. Calder, A. Dubey, R. Fisher, M.K. Ganapathy, J.B. Gallagher, L.B. Reid, K. Riley, D. Sheeler, and N. Taylor, *proc. Parallel and Distributed Processing Techniques and Applications (PDPTA '06)*
22. *Laboratory Astrophysics Experiments for Simulation Code Validation: A Case Study.* A. C. Calder, *Ap&SS*, **298**, 25, 2005
21. *Type Ia Supernovae: Simulations and Nucleosynthesis.* E. F. Brown, A. C. Calder, T. Plewa, P. M. Ricker, K. Robinson, J. B. Gallagher. *Nuclear Physics A*, **758**, 451, 2005
20. *Type Ia Supernova Explosion: Gravitationally Confined Detonation.* T. Plewa, A. C. Calder, and D. Q. Lamb. *ApJ*, **612**, L37, 2004

19. *On the Nonlinear Evolution of Wind-driven Gravity Waves.* A. Alexakis, A. C. Calder, L. J. Dursi, R. Rosner, F. X. Timmes, B. Fryxell, M. Zingale, P. M. Ricker, and K. Olson. *Phys. Fluids*, **16**, No. 9, 3256, 2004
18. *Validating Astrophysical Simulation Codes.* A. C. Calder, L. J. Dursi, B. Fryxell, T. Plewa, V. G. Weirs, T. Dupont, H. F. Robey, J. O. Kane, R. P. Drake, B. A. Remington, G. Dimonte, J. Hayes, J. M. Stone, P. M. Ricker, F. X. Timmes, M. Zingale, and K. Olson. *CiSE* **6** No. 5, 10, 2004
17. *A comparison of high-resolution 3D numerical simulations of turbulent Rayleigh-Taylor (RT) instability: Alpha-Group collaboration.* G. Dimonte, D. Youngs, A. Dimits, S. Weber, M. Marinak, S. Wunsch, C. Garasi, A. Robinson, M. J. Andrews, P. Ramaprabhu, A. C. Calder, B. Fryxell, J. Biello, L. Dursi, P. MacNeice, K. Olson, P. Ricker, R. Rosner, F. Timmes, H. Tufo, Y.-N. Young, and M. Zingale. *Phys. Fluids*, **16**, No. 5, 1668, 2004
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15. *Morphology of Rising Hydrodynamic and Magneto-hydrodynamic Bubbles from Numerical Simulations.* K. Robinson, L. J. Dursi, P. M. Ricker, R. Rosner, T. Linde, M. Zingale, A. C. Calder, B. Fryxell, J. W. Truran, F. X. Timmes, A. Caceres, K. Olson, K. Riley, A. Siegel, and N. Vladimirova. *ApJ*, **601** 621, 2004
14. *The Response of Model and Astrophysical Thermonuclear Flames to Curvature and Stretch.* L. J. Dursi, M. Zingale, A. C. Calder, B. Fryxell, F. X. Timmes, N. Vladimirova, R. Rosner, A. Caceres, D. Q. Lamb, K. Olson, P. M. Ricker, K. Riley, A. Siegel, and J. W. Truran. *ApJ*, **595** 955, 2003
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10. *Interface Imprinting by a Rippled Shock Using an Intense Laser.* J. O. Kane, H. F. Robey, B. A. Remington, R. P. Drake, J. Knauer, D. D. Ryutov, H. Louis, R. Teyssier, O. Hurricane, D. Arnett, R. Rosner, and A. Calder. *Phys. Rev. E*, **63**, 055401(R), 2001

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3. *An Investigation of Neutrino-Driven Convection and the Core Collapse Supernovae Mechanism Using Multigroup Neutrino Transport.* A. Mezzacappa, A. C. Calder, S. W. Bruenn, J. M. Blondin, M. W. Guidry, M. R. Strayer, and A. S. Umar. *ApJ*, **495** 911, 1998
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24. *Preliminary Results of Three-Dimensional Simulations of the Deflagration Phase of the Gravitationally Confined Detonation Model of Type Ia Supernovae.* G. C. Jordan IV, R. T. Fisher, D. M. Townsley, A. C. Calder, C. Graziani, S. M. Asida, D. Q. Lamb, and J. W. Truran, in press, to appear in *proc. Astronom 2007*, International Conference on Numerical Modeling of Space Plasma Flows, June 2007, Paris, France.

23. *New insights in to the single-mode Rayleigh-Taylor instability.* P. Ramaprabhu, G. Dimonte, A. C. Calder, and B. Fryxell, in press, to appear in proc. IWPCTM, July 2006, Paris, France.
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21. *A Case Study of Verifying and Validating an Astrophysical Simulation Code.* A. C. Calder, N. T. Taylor, K. Antypas, and D. Sheeler, in *Numerical Modeling of Space Plasma Flows: Astronom-2006 ASP Conference Series, Volume 359, Proceedings of the Conference Held 26-30 March, 2006*, in Palm Springs, California, USA. G.P. Zank and N.V. Pogorelov, eds. San Francisco: Astronomical Society of the Pacific., p. 119
20. *FLASH: Applications and Future.* K.B. Antypas, A. C. Calder, A. Dubey, J. B. Gallagher, J. Joshi, D. Q. Lamb, T. Linde, E. Lusk, O. E. B. Messer, A. Mignone, H. Pan, M. Papka, F. Peng, T. Plewa, P. M. Ricker, K. Riley, D. Sheeler, A. Siegel, N. Taylor, J. W. Truran, N. Vladimirova, G. Weirs, D. Yu, Z. Zhang. in *Parallel Computational Fluid Dynamics 2005: Theory and Applications*, eds. A. Deane, G. Brenner, A. Ecer, D. R. Emerson, j. McDonough, J. Periaux, N. Satofuka, D. Tromeur-Dervout. Elsevier, Amsterdam, 2006, p. 325
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13. *Mixing by Non-linear Wave Breaking at the Surface of a White Dwarf.* A. C. Calder, A. Alexakis, L. J. Dursi, R. Rosner, J. W. Truran, B. Fryxell, P. Ricker, M. Zingale, K. Olson, F. X. Timmes, and P. MacNeice. in Classical Nova Explosions, eds. M. Hernanz and J. Jose, AIP, Melville, 2002, p. 134
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6. *Large-Scale Simulations of Clusters of Galaxies.* P. M. Ricker A. C. Calder, L. J. Dursi, B. Fryxell, D. Q. Lamb, P. MacNeice, K. Olson, R. Rosner, F. X. Timmes, J. W. Truran, H. M. Tufo, M. Zingale. in Proceedings of the VII International Workshop on Advanced Computing and Analysis Techniques in

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Abstracts

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72. *Overview of Flash Center Goals and Key Results*. A. Dubey, A. Calder, T. Dupont, D. Q. Lamb, R. Lusk, M. Papka, J. Truran. *BAAS*, **38** 79, 2006.
71. *Strong and Weak Nuclear Evolution of Material Behind a Deflagration Front in a Type Ia Supernova*. I. R. Seitenzhal, A. C. Calder, F. Peng, D. Q. Lamb, D. M. Townsley, J. W. Truran. *BAAS*, **38** 79, 2006.

70. *Flame Energetics in Type Ia Supernovae.* A. C. Calder, E. F. Brown, D. Q. Lamb, O. E. B. Messer, F. Peng, I. R. Seitenzahl, D. Townsley, and J. Truran, N. Vladimirova. 6th International Conference on High Energy Density Laboratory Astrophysics, March 11-14, Rice University, 2006.
69. *Strong and Weak Nuclear Evolution of Material Behind a Deflagration Front in a Type Ia Supernova.* D. M. Townsley, I. R. Seitenzahl, A. C. Calder, F. Peng, D. Q. Lamb, and J. W. Truran. 6th International Conference on High Energy Density Laboratory Astrophysics, March 11-14, Rice University, 2006.
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66. *Numerical Simulation of 2D Relativistic Hydrodynamics Using Adaptive Mesh Refinement Technique.* K. Kwak, F. D. Swesty, IBEAM Team. BAAS, **37** 1289, 2005.
65. *Type Ia Supernova Energetics.* A. C. Calder, J. W. Truran, O. E. B. Messer, F. Peng, I. R. Seitenzahl, E. F. Brown, C. Dreier, D. Q. Lamb. BAAS, **37** 501, 2005.
64. *On the non-linear evolution of wind driven gravity waves.* Alexandros Alexakis, Alan Calder, Jonathan Dursi, Robert Rosner. BAPS, **49** No. 9, 153, 2004.
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59. *PARAMESH-enabled numerical simulations of wind driven gravity waves on the surface of a white dwarf.* Alexandros Alexakis, Alan Calder, Jonathan Dursi, Kevin Olson Chicago Workshop on Adaptive Mesh Refinement Methods, September 3-5, 2003.
58. *High-Performance Reactive Fluid Flow Simulations Using Adaptive Mesh Refinement on Thousands of Processors.* Calder, A. C., Curtis B. C., Dursi L. J., Fryxell B., Henry G., MacNeice P., Olson K., Ricker P., Rosner R., Times F. X., Tufo H., Truran J., Zingale M. Chicago Workshop on Adaptive Mesh Refinement Methods, September 3-5, 2003.
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