

# JOHN B. BELL

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## EDUCATION

**Cornell University** Ph.D. in Mathematics, 1979.

**Cornell University** M.S. in Mathematics, 1977.

**Massachusetts Institute of Technology** B.S. in Mathematics, 1975.

## WORK EXPERIENCE

**Lawrence Berkeley National Laboratory.** August 2014 - present.  
Chief Scientist, Computational Research Division.

**Lawrence Berkeley National Laboratory.** March 1996 - present.  
Senior Staff Scientist.

**Lawrence Berkeley National Laboratory.** October 2011 - August 2014.  
Mathematics and Computational Science Department Head.

**Lawrence Berkeley National Laboratory.** March 1996 - August 2014.  
Group Leader of the Center for Computational Sciences and Engineering.

**Lawrence Livermore National Laboratory.** November 1993 - March 1996.  
Director of the Center for Computational Sciences and Engineering.

**Lawrence Livermore National Laboratory.** July 1986 - October 1993.  
Group Leader of the Applied Mathematics Group. (Staff scientist until August 1988).

**Exxon Production Research Company.** March 1982 - June 1986.  
Research Specialist and Group Leader of the Applied Mathematics Group in the Long Range Research Division.

**Naval Surface Weapons Center.** September 1979 - March 1982.  
Research Mathematician in the Mathematical Analysis Branch.

## PROFESSIONAL SERVICE

Member, National Academies' Board on Mathematical Sciences and Their Applications, Sept. 2014 – June 2017.

Managing editor, Comm. in Applied Mathematics and Computational Science, June 1, 2005 - present.

Member, SIAM Financial Management Committee, January 2008 – present.

Chair, AMS von Neumann Symposium, July 2011.

Member, NAS Combustion Infrastructure Study, December 2008 – December 2011.

Chair, SIAM Activity Group in Computational Science and Engineering, Jan.1, 2007 - Dec. 31, 2008.

Co-Chair, SIAM Annual Meeting, July 2004.

Editor, SIAM Review, July 1994 - December 1997.

Editor, Journal of Computational Physics, April 1990 - September 1991.

Chairman, 1988 Gordon Research Conference on Modeling of Flow in Permeable Media.

Vice-chairman, 1986 Gordon Research Conference on Modeling of Flow in Permeable Media.

## RECENT AWARDS AND HONORS

Research Excellence Award of the Combustion Institute, Feb. 2020.

The Berkeley Lab Prize – Lifetime Achievement Award, Nov. 2018.

Member, National Academy of Sciences, May 2012.

Fellow, Society of Industrial and Applied Mathematics, April 2009.

Sidney Fernbach Award, Nov. 2005.

SIAM/ACM Prize in Computational Science and Engineering, July 2003.

## PUBLICATIONS

1. Weiqun Zhang, Andrew Myers, Kevin Gott, Ann Almgren and John Bell, “AMReX: Block-Structured Adaptive Mesh Refinement for Multiphysics Applications”, *International Journal of High Performance Computing Applications*, June 12, 2021.
2. J-L Vay, Ann Almgren, LD Amorim, John Bell, L Fedeli, L Ge, K Gott, DP Grote, M Hogan, A Huebl, R Jambunathan, R Lehe, A Myers, C Ng, M Rowan, O Shapoval, M Thevenet, H Vincenti, E Yang, N Zaim, W Zhang, Y Zhao and E Zoni, “Modeling of a chain of three plasma accelerator stages with the WarpX electromagnetic PIC code on GPUs”, *Physics of Plasmas*, 28(2), 2021.
3. Luigi Delle Site, Matej Praprotnik, John B. Bell and Rupert Klein, “Particle-Continuum Coupling and its Scaling Regimes: Theory and Applications, *Advanced Theory and Simulations*”, Vol. 3, No. 5, 1900232, 2020.
4. Ann Almgren, Maria Barrios Sazo, John Bell, Alice Harpole, Max Katz, Jean Sexton, Donald Willcox, Weiqun Zhang, and Michael Zingale, “CASTRO: A Massively Parallel Compressible Astrophysics Simulation Code”, *Journal of Open Source Software*, 5, 54, 2513, 2020.
5. J-L Vay, Ann Almgren, LD Amorim, John Bell, L Ge, K Gott, DP Grote, M Hogan, A Huebl, R Jambunathan, R Lehe, A Myers, C Ng, J Park, M Rowan, O Shapoval, M Thevenet, W Zhang, Y Zhao, and E Zoni, “Toward the modeling of chains of plasma accelerator stages with WarpX”, *Journal of Physics: Conference Series*, 1596, 1, 012059, 2020.
6. Andrew Myers, Ann Almgren, Diana Almorim, John Bell, Luca Fedeli, Lixin Ge, Kevin Gott, David Grote, Mark Hogan, Axel Huebl, Revathi Jambunathan, Remi Lehe, Cho Ng, Michael Rowan, Olga Shapoval, Maxence Thevenet, Jean-Luc Vay, Henri Vincenti, Eloise Yang, Neil Zaim, Weiqun Zhang, Yin Zhao, Edoardo Zoni, “Porting WarpX to GPU-accelerated platforms”, submitted for publication, 2020.
7. Jordan Musser, Ann S Almgren, William D Fullmer, Oscar Antepará, John B Bell, Johannes Blaschke, Kevin Gott, Andrew Myers, Roberto Porcu, Deepak Rangarajan, Michele Rosso, Weiqun Zhang, and Madhava Syamlal, “MFiX:Exa: A Path Towards Exascale CFD-DEM Simulations”, *IJHPCA*, April 26, 2021
8. D. R. Ladiges, S. P. Carney, A. Nonaka, K. Kymko, G. C. Moore, A. L. Garcia, S. R. Natesh, A. Donev and J. B. Bell, “A Discrete Ion Stochastic Continuum Overdamped Solvent Algorithm for Modeling Electrolytes”, accepted for publication in *Phys. Rev. Fluids*, 2020.
9. D. Dalakoti, A. Wehrfritz, B. Savard, M. Day, J. Bell, and E. Hawkes, “An a priori evaluation of a principal component and artificial neural network based combustion model in diesel engine conditions”, in press, *Proc. Combust. Inst.*, 2020.
10. D. Dalakoti, B. Savard, E. R. Hawkes, A. Wehrfritz, H. Wang, M. Day, and J. Bell, “Direct numerical simulation of a spatially developing n-dodecane jet flame under spray a thermochemical conditions: Flame structure and stabilisation mechanism”, *Combust. Flame*, 217:57-76, 2020.
11. K. Klymko, S. P. Carney, A. Nonaka, A. L. Garcia, and J. B. Bell, “A Low Mach Number Fluctuating Hydrodynamics Model For Ionic Liquids”, *Phys. Rev. Fluids*, 5, 9, 2020.
12. F. Alexander, A. Almgren, J. Bell, A. Bhattacharjee, J. Chen, P. Colella, D. Daniel, J. DeSlippe, L. Diachin, E. Draeger, A. Dubey, T. Dunning, T. Evans, I. Foster, M. Francois, T. Germann, M. Gordon, S. Habib, M. Halappanavar, S. Hamilton, W. Hart, Z. Huang, A. Hungerford, D. Kasen, P. Kent, T. Kolev, D. Kothe, A. Kronfeld, Y. Luo, P. Mackenzie, D. McCallen, B. Messer, S. Mniszewski, C. Oehmen, A. Perazzo, D. Perez, D. Richard, W. Rider, R. Rieben, K. Roche, A. Siegel, M. Sprague, C. Steefel, R. Stevens, M. Syamlal, M. Taylor, J. Turner, J.-L. Vay, A. Voter, T. Windus and K. Yelick, “Exascale applications: skin in the game”, *Phil. Trans. R. Soc. A*, 2020.

13. Leen Alawieh, Jonathan Goodman, John B. Bell, "Iterative construction of Gaussian process surrogate models for Bayesian inference", *Journal of Statistical Planning and Inference*, 207, July 2020.
14. M. Zingale, M. P. Katz, J. B. Bell, M. L. Minion, A. J. Nonaka, W. Zhang, "Improved Coupling of Hydrodynamics and Nuclear Reactions via Spectral Deferred Corrections", *Astrophysical Journal*, 886, 2, 2019.
15. L. Esclapez, V. Ricchiuti, J. B. Bell, and M. S. Day, "A spectral deferred correction strategy for low Mach number flows subject to electric fields" *Combustion Theory and Modelling*, 2019.
16. Deepak K. Dalakoti, Alex Krisman, Bruno Savard, Armin Wehrfritz, Haiou Wang, Marc S. Day, John B. Bell, and Evatt R Hawkes "Structure and propagation of two-dimensional, partially pre-mixed, laminar flames in diesel engine conditions," *Proc. Combust. Inst* 37 (2) 2018.
17. W. Zhang, A. Almgren, V. Beckner, J. Bell, J. Blaschke, C Chan, M. Day, B. Friesen, K. Gott, D. Graves, M. Katz, A. Myers T. Nguyen, A. Nonaka, M. Rosso, S. Williams and M. Zingale, "AMReX: a framework for block-structured adaptive mesh refinement", *Journal of Open Source Software*, 4(37), 1370, 2019.
18. D. R. Ladiges, A. J. Nonaka, J. B. Bell, A. L. Garcia, "On the Suppression and Distortion of Non-Equilibrium Fluctuations by Transpiration," *Phys. Fluids* 4, 4, 2019.
19. M. Zingale, K. Eiden, Y. Cavecchi, A. Harpole, J. B. Bell, M. Chang, I. Hawke, M. P. Katz, C.M. Malone, A. J. Nonaka, D. E. Willcox, and W. Zhang, "Toward resolved simulations of burning fronts in thermonuclear X-ray bursts," *Journal of Physics: Conference Series*, 1225, p, 012005, 2019.
20. A. Donev, A. J. Nonaka, C. Kim, A. L. Garcia and J. B. Bell, "Fluctuating hydrodynamics of electrolytes at electroneutral scales," *Phys. Rev. Fluids*. 4, 4, 2019.
21. A. J. Aspden, M. S. Day and J. B. Bell, "Towards the Distributed Burning Regime in Turbulent Premixed Flames," *Journal of Fluid Mechanics*, 871, pp. 1-21, 2019. [
22. A. Donev, A. L. Garcia, J. Peraud, A. Nonaka, J. B. Bell, "Fluctuating hydrodynamics and Debye-Hückel-Onsager theory for electrolytes," *Current Opinion in Electrochemistry*, 13, 2019.
23. J. Bell, M. Day, J. Goodman, R. Grout and M. Morzfeld, "A Bayesian approach to calibrating hydrogen flame kinetics using many experiments and parameters," *Combustion and Flame*, 205, pp. 305-315, 2019.
24. M. Emmett, E. Motheau, W. Zhang, M. Minion and J. B. Bell, "A Fourth-Order Adaptive Mesh Refinement Algorithm for the Multicomponent, Reacting Compressible Navier-Stokes Equations," *Combustion Theory and Modelling*, 23:4, 592-625, 2019.
25. C. Kim, A. Nonaka, J.B. Bell, A.L. Garcia, and A. Donev, "Fluctuating hydrodynamics of reactive liquid mixtures," *J. Chem. Phys.* 149, 084113, 2018.
26. J.-L. Vay, A. Almgren, J. Bell, L. Ge, D. P. Grote, M. Hogan, O. Kononenko, R. Lehe, A. Myers, C. Ng, J. Park, R. Ryne, O. Shapoval, M. Thevenet, W. Zhang "Warp-X: a new exascale computing platform for beam-plasma simulations," *Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, Detectors and Associated Equipment*, 2018.
27. Deepak K. Dalakoti, Alex Krisman, Bruno Savard, Armin Wehrfritz, Haiou Wang, Marc S. Day, John B. Bell, and Evatt R Hawkes "Structure and propagation of two-dimensional, partially pre-mixed, laminar flames in diesel engine conditions," *Proc. Combust. Inst.* 37 (2), 2018.
28. E. Motheau, M. Duarte, A. Almgren, J. Bell, "A Hybrid Adaptive Low-Mach-Number/Compressible Method: Euler Equations," *Journal of Computational Physics*, Volume 372, Pages 1027-1047, 2018.
29. M. Morzfeld, M. Day, R. Grout, G. S. H. Pau, S. Finsterle, J. Bell, "Iterative importance sampling algorithms for parameter estimation problems," *SIAM J. Scientific Computing* 40 (2) B329-B352, 2018.

30. A. Nonaka, M. S. Day, and J. B. Bell, "A conservative, thermodynamically consistent numerical approach for low Mach number combustion. I. Single-level integration," *Combust. Theor. Model.*, vol. 22, no. 1, pp. 156-184, 2018.
31. M. Zingale, A. S. Almgren, M. G. Barrios Sazo, V. E. Beckner, J. B. Bell, B. Friesen, A. M. Jacobs, M. P. Katz, C. M. Malone, A. J. Nonaka, D. E. Willcox, and W. Zhang, "Meeting the Challenges of Modeling Astrophysical Thermonuclear Explosions: Castro, Maestro, and the AMReX Astrophysics Suite", to appear.
32. J-P. Péraud, A. Nonaka, J. B. Bell, A. Donev, and A. L. Garcia, "Fluctuation-enhanced electric conductivity in electrolyte solutions", *P. Natl. Acad. Sci. USA*, 114, 41, 2017.
33. Emmanuel Motheau, Ann Almgren, John Bell, "Navier-Stokes Characteristic Boundary Conditions Using Ghost Cells," *AIAA J.*, Vol. 55, No. 10 : pp. 3399-3408, 2017
34. D. Dalakoti, E. Hawkes, M. Day and J. Bell, "Direct numerical simulation of two-stage combustion and flame stabilization in diesel engine-relevant conditions" 26th ICDERS, 2017.
35. C. Kim, A. Nonaka, J. B. Bell, A. L. Garcia, and A. Donev, "Fluctuating Hydrodynamics of Reaction-Diffusion Systems," *J. Chem. Phys.* 146, 124110, 2017.
36. M. Morzfeld, M. Day, R. Grout, G. S. H. Pau, S. Finsterle, J. Bell, " Iterative importance sampling algorithms for parameter estimation problems," *SIAM J. Scientific Computing* 40 (2) B329-B352, 2018.
37. Cy Chan, John Bachan, Joseph Kenny, Jeremiah Wilke, Vincent Beckner, Ann Almgren and John Bell "Topology-Aware Performance Optimization and Modeling of Adaptive Mesh Refinement Codes for Exascale," *COMHPC 2016 - SC16 Workshop on Communication Optimization in High Performance Computing*, Salt Lake City, UT, November 18, 2016.
38. A. J. Aspden, J. B. Bell, M. S. Day and F. N. Egolfopoulos, "Turbulence-Flame Interactions in Lean Premixed Dodecane Flames," *Proc. Combust. Inst.*, 36(2), pp. 2005-2016, 2017.
39. J. Peraud, A. Nonaka, A. Chaudhri, J. B. Bell, A. Donev, and A. L. Garcia, "Low Mach Number Fluctuating Hydrodynamics for Electrolytes," *Phys. Rev. Fluids*, 1, 074103, 2016.
40. W. Pazner, A. Nonaka, J. B. Bell, M. S. Day, and M. L. Minion, "A High-Order Spectral Deferred Correction Strategy for Low Mach Number Flow With Complex Chemistry," *Combust. Theory Modelling*, 2016.
41. A. J. Aspden, M. S. Day and J. B. Bell, "Three-Dimensional Direct Numerical Simulation of Turbulent Lean Premixed Methane Combustion with Detailed Kinetics," *Combustion and Flame*, 166, 266-283, 2016.
42. A.M. Jacobs, M. Zingale, A. Nonaka, A.S. Almgren, J.B. Bell, "Low Mach Number Modeling of Convection in Helium Shells on Sub-Chandrasekhar White Dwarfs II: Bulk Properties of Simple Models," *Astrophysical Journal*, 827, 84, 2016.
43. M. Day, S. Tachibana, J. Bell, M. Lijewski, V. Beckner and R. Cheng, "A combined computational and experimental characterization of lean premixed turbulent low swirl laboratory flames. II. Hydrogen flames.", *Combustion and Flame*, 162 (5) 2148-2165, 2015.
44. M. Zingale, A. Jacobs, A. Almgren, J. Bell, A. Nonaka, C. Malone, S. Woosley, "Understanding Ignition in Type Ia Supernovae", 25rd International Colloquium on the Dynamics of Explosions and Reactive Systems, Leeds, UK, August 2-7, 2015.
45. R.W. Grout, H. Kolla, M.L. Minion and J.B. Bell, "Achieving algorithmic resilience for temporal integration through spectral deferred corrections," accepted for publication, *Comm. Appl. Math. and Comput. Sci.*
46. Aleksandar Donev, Andy Nonaka, Amit Kumar Bhattacharjee, Alejandro L. Garcia, John B. Bell, "Low Mach Number Fluctuating Hydrodynamics of Multispecies Liquid Mixtures," *Phys. Fluids*, 27, 3, 2015.

47. A. Amato, M. Day, R. K. Cheng, J. Bell, T. Lieuwen, "Topology and Burning Rates of Turbulent, Lean, H<sub>2</sub>-Air Flames", *Combustion and Flame*, 162, 4553–4565, 2015.
48. A. K. Bhattacharjee, K. Balakrishnan, A. L. Garcia, J. B. Bell, and A. Donev, "Fluctuating hydrodynamics of multispecies reactive mixtures," *J. Chem. Phys.*, 142, 224107, 2015.
49. M. Zingale, C. M. Malone, A. Nonaka, A. S. Almgren, and J. B. Bell, "Comparisons of Two- and Three-Dimensional Convection in Type I X-ray Bursts," *Astrophysical Journal*, 807, 60, 2015.
50. A. Nonaka, Y. Sun, J. B. Bell, and A. Donev, "Low Mach Number Fluctuating Hydrodynamics of Binary Liquid Mixtures," *Comm. App. Math. and Comp. Sci.*, vol. 10, no. 2, 2015.
51. Max Duarte, Ann S. Almgren, and John B. Bell, "A Low Mach Number Model for Moist Atmospheric Flows," *Journal of the Atmospheric Sciences*, 72(4), pp. 1605-1620, 2015.
52. Didem Unat, Cy Chan, Weiqun Zhang, Samuel Williams, John Bachan, John Bell, and John Shalf, "ExaSAT: An Exascale Co-Design Tool for Performance Modeling," *International Journal of High Performance Computing Applications (IJHPCA)*, February 2015.
53. Anuj Chaudhri, John Bell, Alejandro Garcia and Aleksandar Donev "Modeling Multi-Phase Flow using Fluctuating Hydrodynamics", *Physical Review E*, 90, 033014, 2014.
54. Ann Almgren, John Bell, Andy Nonaka and Michael Zingale, "Low Mach Number Modeling of Stratified Flows," *Finite Volumes for Complex Applications VII – Methods and Theoretical Aspects*, Springer Proceedings in Mathematics and Statistics, eds. J. Fuhrmann, M. Ohlberger, C. Rohde, Berlin, June 2014.
55. M. Cai, A. Nonaka, B. E. Griffith, J. B. Bell, and A. Donev, "Efficient Variable-Coefficient Finite-Volume Stokes Solvers," *Commun. Comput. Phys.*, vo. 16, no. 5, 1263–1297, 2014.
56. A. Donev, A. Nonaka, Y. Sun, T. Fai, A. Garcia and J. Bell, "Low Mach Number Fluctuating Hydrodynamics of Diffusively Mixing Fluids," *Comm. App. Math. and Comp. Sci.*, vol. 9, no. 1, 2014.
57. C. M. Malone, M. Zingale, A. Nonaka, A. S. Almgren, and J. B. Bell, "Multidimensional Modeling of Type I X-ray Bursts. II. Two-Dimensional Convection in a Mixed H/He Accretor", *Astrophysical Journal*, 788, 115, 2014.
58. W. Schmidt, A.S. Almgren, H. Braun, J.F. Engels, J.C. Niemeyer, R.R. Mekuria, A.J. Aspden, J.B. Bell, "Cosmological Fluid Mechanics with Adaptively Refined Large Eddy Simulations," *Monthly Notices of the Royal Astronomical Society*, to appear, 2014.
59. K. Balakrishnan, A. Garcia, A. Donev, and J. Bell, "Fluctuating hydrodynamics of multispecies nonreactive mixtures" *Physical Review E*, vol. 89, No. 1, January 2014.
60. C. M. Malone, A. Nonaka, S. E. Woosley, A. S. Almgren, J. B. Bell, S. Dong, and M. Zingale, "The Deflagration Stage of Chandrasekhar Mass Models for Type Ia Supernovae: I. Early Evolution", *Astrophysical Journal*, 782, 11, 2014.
61. A. Dubey, A. Almgren, J. Bell, M. Berzins, S. Brandt, G. Bryan, P. Colella, D. Graves, M. Lijewski, F. Loffler, B. O'Shea, E. Schnetter, B. Van Straalen, K. Weide, "A Survey of High Level Frameworks in Block-Structured Adaptive Mesh Refinement Packages", *Journal of Parallel and Distributed Computing*, to appear, 2014.
62. A. J. Aspden, M. S. Day and J. B. Bell, "Turbulence-Chemistry Interaction in Lean Premixed Hydrogen Combustion," *Proc. Combust. Inst.* 35 (2) pp. 1321-1329, 2014.
63. A. Amato, M. Day, R. K. Cheng, J. Bell, T. Lieuwen, "Leading Edge Statistics of Turbulent, Lean, H<sub>2</sub>-Air Flames," *Proc. Combust. Inst.* 35 (2014) pp. 1313-1320.
64. Max Duarte, Ann S. Almgren, Kaushik Balakrishnan, John B. Bell, David M. Romps, "A Numerical Study of Methods for Moist Atmospheric Flows: Compressible Equations," to appear in *Monthly Weather Review*.

65. M. Emmett, W. Zhang, J.B. Bell, “High-Order Algorithms for Compressible Reacting Flow with Complex Chemistry,” *Combustion Theory and Modelling*, pp. 361-387, May 2014.
66. Didem Unat, Cy Chan, Weiqun Zhang, John Bell, and John Shalf, “Tiling as a Durable Abstraction for Parallelism and Data Locality, WOLFHPC 2013 - SC13 Workshop on Domain-Specific Languages and High-Level Frameworks for High-Performance Computing, 2013.
67. Cy Chan, Joseph Kenny, Gilbert Hendry, Didem Unat, Vincent Beckner, John Bell and John Shalf, “An AMR Computation and Communication Dependency and Analysis Methodology, IA<sup>3</sup> 2013 - SC13 Workshop on Irregular Applications: Architectures and Algorithms, 2013.
68. C. Gilet, A.S. Almgren, J.B. Bell, A. Nonaka, S.E. Woosley and M. Zingale, “Low-Mach Number Modeling of Core Convection in Massive Stars”, *Astrophysical Journal*, 773, 137, 2013.
69. Haitao Ma, Stan Woosley, Chris Malone, Ann Almgren, and J.B. Bell, “Carbon Deflagration in Type Ia Supernovae: I. Centrally Ignited Models”, *Astrophysical Journal*, 771, 58, 2013.
70. M. Zingale, A. Nonaka, A. S. Almgren, J. B. Bell, C. Malone, and R. Orvedahl, “Low Mach Number Modeling of Convection in Helium Shells on Sub-Chandrasekhar White Dwarfs. I. Methodology”, *Astrophysical Journal*, 764, 97, 2013.
71. Weiqun Zhang, L. Howell, A. Almgren, A. Burrows, J. Dolence, J. Bell, “CASTRO: A New Compressible Astrophysical Solver. III. Multigroup Radiation Hydrodynamics”, *Astrophysical Journal Supplement Series*, 204, 7, 2013.
72. A. S. Almgren, J. B. Bell, M.J. Lijewski, Z. Lukic, E. Van Andel, “Nyx: A Massively Parallel AMR Code for Computational Cosmology” *Astrophysical Journal*, 765, 39, 2013.
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76. K. Balakrishnan, J.B. Bell, A. Donev, and A. Garcia, “Fluctuating Hydrodynamics and Direct Simulation Monte Carlo”, 28th International Symposium on Rarefied Gas Dynamics , AIP Conf. Proc. 1501 , 695-704, 2012.
77. J. B. Bell, M. S. Day and M. J. Lijewski, “Simulation of Nitrogen Emissions in a Premixed Hydrogen Flame Stabilized on a Low Swirl Burner”, *Proceedings of the Combustion Institute*, 2012.
78. A. Nonaka, A. J. Aspden, M. Zingale, A. S. Almgren, J. B. Bell, and S. E. Woosley, “High-Resolution Simulations of Convection Preceding Ignition in Type Ia Supernovae Using Adaptive Mesh Refinement”, *Astrophysical Journal*, 745, 73, 2012.
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83. A. J. Aspden, J. B. Bell, S. Dong, and S. E. Woosley, “Burning Thermals in Type Ia Supernovae”, *Astrophysical Journal*, 738, 94-107, (2011).

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87. A. Nonaka, S. May, A. S. Almgren, and J. B. Bell, “A Three-Dimensional, Unsplit Godunov Method for Scalar Conservation Laws”, *SIAM Journal on Scientific Computing*, vol. 33, no. 4, 2011.
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