

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

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. J. Bell, M. Day, J. Goodman, R. Grout and M. Morzfeld, "A Bayesian approach to calibrating hydrogen flame kinetics using many experiments and parameters," submitted for publication 2018.
2. E. Motheau, M. Duarte, A. Almgren, J. Bell, "A Hybrid Adaptive Low-Mach-Number/Compressible Method. Part I: Euler Equations," *Journal of Computational Physics*, In press, 2018.
3. 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.
4. 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.
5. J-P. Praud, 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.
6. Emmanuel Motheau, Ann Almgren, John Bell, "Navier-Stokes Characteristic Boundary Conditions Using Ghost Cells," *AIAA J.*, Vol. 55, No. 10 : pp. 3399-3408, 2017
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.
13. 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.
14. 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.
15. 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.
16. 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.
17. 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.

18. 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.*
19. 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.
20. A. Amato, M. Day, R. K. Cheng, J. Bell, T. Lieuwen, “Topology and Burning Rates of Turbulent, Lean, H₂-Air Flames”, *Combustion and Flame*, 162, 4553–4565, 2015.
21. 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.
22. 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.
23. 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.
24. 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.
25. 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.
26. Anuj Chaudhri, John Bell, Alejandro Garcia and Aleksandar Donev “Modeling Multi-Phase Flow using Fluctuating Hydrodynamics”, *Physical Review E*, 90, 033014, 2014.
27. 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.
28. 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.
29. 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.
30. 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.
31. W. Schmidt, A.S. Almgren, H. Braun, J.F. Engels, J.C. Niemeyer, R.R. Mekuria, A.J. Aspdén, J.B. Bell, “Cosmological Fluid Mechanics with Adaptively Refined Large Eddy Simulations,” *Monthly Notices of the Royal Astronomical Society*, to appear, 2014.
32. K. Balakrishnan, A. Garcia, A. Donev, and J. Bell, “Fluctuating hydrodynamics of multispecies nonreactive mixtures” *Physical Review E*, vol. 89, No. 1, January 2014.
33. 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.
34. 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.
35. A. J. Aspdén, M. S. Day and J. B. Bell, “Turbulence-Chemistry Interaction in Lean Premixed Hydrogen Combustion,” *Proc. Combust. Inst.* 35 (2) pp. 1321-1329, 2014.

36. A. Amato, M. Day, R. K. Cheng, J. Bell, T. Lieuwen, “Leading Edge Statistics of Turbulent, Lean, H₂-Air Flames,” *Proc. Combust. Inst.* 35 (2014) pp. 1313-1320.
37. 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*.
38. 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.
39. 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.
40. Cy Chan, Joseph Kenny, Gilbert Hendry, Didem Unat, Vincent Beckner, John Bell and John Shalf, “An AMR Computation and Communication Dependency and Analysis Methodology, IA³ 2013 - SC13 Workshop on Irregular Applications: Architectures and Algorithms, 2013.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. A.S. Almgren, A.J. Aspden, J. B. Bell, and M. L. Minion, “On the Use of Higher-Order Projection Methods for Incompressible Turbulent Flow”, *SIAM J. Sci. Comput.*, 35, 1, B25-B42, 2013.
47. A. Nonaka, J. B. Bell, M. S. Day, C. Gilet, A. S. Almgren, and M. L. Minion, “A Deferred Correction Coupling Strategy for Low Mach Number Flow with Complex Chemistry”, *Combustion Theory and Modeling*, 16, 6, 1053-1088, 2012.
48. F. Balboa, J. Bell, R. Delgado-Buscalioni, A. Donev, T. Fai, B. Griffith, C. Peskin, “Staggered Schemes for Fluctuating Hydrodynamics”, *Multiscale Modeling and Simulation*, 10, 4, 1360-1408, 2012.
49. 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.
50. 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.
51. 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.
52. K. Balakrishnan, A. L. Kuhl, J. B. Bell and V. E. Beckner, “An Empirical Model for the Ignition of Explosively Dispersed Aluminum Particle Clouds”, to appear in *Shock Waves*, 2012.
53. W. Zhang, L. Howell, A. Almgren, A. Burrows, and J. Bell, “CASTRO: A New Compressible Astrophysical Solver. II. Gray Radiation Hydrodynamics”, *Astrophysical Journal Supplement Series*, 1962, 20, 2011.

54. A. Donev, A. de la Fuente, J. B. Bell, and A. L. Garcia, "Enhancement of Diffusive Transport by Nonequilibrium Thermal Fluctuations", *J. Stat. Mech.*, Vol. 2011, P06014, 2011.
55. A. Donev, A. de la Fuente, J. B. Bell, and A. L. Garcia, "Diffusive Transport by Thermal Velocity Fluctuations", *Physical Review Letters*, 106, 204501 (2011).
56. A. J. Aspden, J. B. Bell, S. Dong, and S. E. Woosley, "Burning Thermals in Type Ia Supernovae", *Astrophysical Journal*, 738, 94-107, (2011).
57. M. Zingale, A. Nonaka, A. S. Almgren, J. B. Bell, C. M. Malone, and S. E. Woosley, "The Convective Phase Preceding Type Ia Supernovae", *Astrophysical Journal*, vol. 740, no. 8, 2011.
58. 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. I. Methane flames.", *Combustion and Flame*, 159, 275-290, 2012.
59. G. S. H. Pau, J. B. Bell, A. S. Almgren, K. M. Fagnan and M. J. Lijewski, "An Adaptive Mesh Refinement Algorithm for Compressible Two-Phase Flow In Porous Media", to appear in *Computational Geosciences*.
60. 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.
61. A. Nonaka, A. S. Almgren, J. B. Bell, H. Ma, S. E. Woosley, and M. Zingale, "From Convection to Explosion: End-to-End Simulation of Type Ia Supernovae," *Proceedings of SciDAC 2011*, Denver, Colorado, July 2011.
62. K. Balakrishnan, A. Kuhl, J. Bell, and V. Beckner , "An Empirical Model for the Ignition of Aluminum Particle Clouds Behind Blast Waves", *23rd International Colloquium on the Dynamics of Explosions and Reactive Systems*, July 24–29, 2011.
63. K. Balakrishnan, A. Kuhl, J. Bell, and V. Beckner , "Ignition of Aluminum Particle Clouds Behind Reflected Shock Waves", *23rd International Colloquium on the Dynamics of Explosions and Reactive Systems*, July 24–29, 2011.
64. A. Garcia, A. Donev, J.B. Bell, and B. Alder, "Hydrodynamic fluctuations in a particle-continuum hybrid for complex fluids", *27th International Symposium on Rarefied Gas Dynamics* , AIP Conf. Proc. 1333 , 551-556, 2011.
65. A. Kuhl, J. Bell, V. E. Beckner and K. Balakrishnan, "Spherical Combustion Clouds in Explosions", *23rd International Colloquium on the Dynamics of Explosions and Reactive Systems*, July 24–29, 2011.
66. S. May, A. Nonaka, A. S. Almgren, and J. B. Bell, "An Unsplit, Higher Order Godunov Method Using Quadratic Reconstruction for Advection in Two Dimensions", *Communications in Applied Mathematics and Computational Science*, vol. 6, no. 1, 2011.
67. A. J. Aspden, M. S. Day, and J. B. Bell, "Turbulence-flame interaction in lean premixed hydrogen", *Journal of Fluid Mechanics*, vol 680, pp. 287-320, 2011.
68. A. J. Aspden, J. B. Bell, and S. E. Woosley, "Turbulent Oxygen Flames in Type Ia Supernovae", *Astrophysical Journal*, 730, 144-151, (2011).
69. C. M. Malone, A. Nonaka, A. S. Almgren, J. B. Bell, and M. Zingale, "Multidimensional Modeling of Type I X-ray Bursts. I. Two-Dimensional Convection Prior to the Outburst of a pure ^4He Accretor", *Astrophysical Journal*, 728, 118, Feb. 2011.
70. J. Nordhaus, A. Burrows, A. Almgren, and J. Bell, "Dimension as a Key to the Neutrino Mechanism of Core-Collapse Supernova Explosions," *Astrophysical Journal*, 720, 694, Sept. 2010.
71. J. B. Bell, M. S. Day, X. Gao, M. J. Lijewski, "Simulation of Nitrogen Emissions in a Low Swirl Burner," *SciDAC 2010*, Chattanooga, Tennessee, July 2010.

72. A. Almgren, J. Bell, D. Kasen, M. Lijewski, A. Nonaka, P. Nugent, C. Rendleman, R. Thomas, M. Zingale, "MAESTRO, CASTRO and SEDONA – Petascale Codes for Astrophysical Applications," SciDAC 2010, Chattanooga, Tennessee, July 2010.
73. H. Ma, M. Zingale, S. E. Woosley, A. J. Aspden, J. B. Bell, A. S. Almgren, A. Nonaka, and S. Dong, "Type Ia Supernovae: Advances in Large Scale Simulation," SciDAC 2010, J. of Physics: Conference Series, Chattanooga, Tennessee, July 2010.
74. A. S. Almgren, V.E. Beckner, J.B. Bell, M.S. Day, L.H. Howell, C.C. Joggerst, M.J. Lijewski, A. Nonaka, M. Singer, M. Zingale, "CASTRO: A New Compressible Astrophysical Solver. I. Hydrodynamics and Self-Gravity", *Astrophysical Journal*, 715, 1221-1238, 2010.
75. A. Nonaka, A.S. Almgren, J. B. Bell, M. J. Lijewski, C. M. Malone, and M. Zingale, "MAESTRO: An Adaptive Low Mach Number Hydrodynamics Algorithm for Stellar Flows", *Astrophysical Journal Supplement Series*, 188, 358-383, 2010.
76. G. S. H. Pau, J. B. Bell, K. Pruess, A. S. Almgren, M. J. Lijewski, K. Zhang, "High resolution simulation and characterization of density-driven flow in CO₂ storage in saline aquifers", *Advances in Water Resources*, 33(4), 443-455, 2010.
77. A. Donev, J. B. Bell, A. L. Garcia, and B. J. Alder, "A hybrid particle-continuum method for hydrodynamics of complex fluids", *SIAM J. Multiscale Modeling and Simulation*, 8(3), 871-911, 2010.
78. A. J. Aspden, M. S. Day, and J. B. Bell, "Characterization of Low Lewis Number Flames", *Proceedings of the Combustion Institute*, 33, 1463-1471, 2011.
79. A. J. Aspden, M. S. Day, and J. B. Bell, "Lewis Number Effects in Distributed Flames", *Proceedings of the Combustion Institute*, 33, 1473-1480, 2011.
80. M. S. Day, J. B. Bell, X. Gao and P. Glarborg "Numerical Simulation of Nitrogen Oxide Formation in Lean Premixed Turbulent Flames", *Proceedings of the Combustion Institute*, 33, 1591-1599, 2011.
81. A. L. Kuhl, J. B. Bell, V. E. Beckner, and H. Reichenbach, "Gas Dynamic Model of Turbulent Combustion in TNT Explosions", *Proceedings of the Combustion Institute*, 33, 2177-2185, 2011.
82. M. S. Day, X. Gao, and J. B. Bell, "Properties of Lean Turbulent Methane-Air Flames with Significant Hydrogen Addition", *Proceedings of the Combustion Institute*, 33, 1601-1608, 2011.
83. A. J. Aspden, J. B. Bell, and S. E. Woosley, "Distributed Flames in Type Ia Supernovae", *Astrophysical Journal*, 710, 1654-1663, February 2010.
84. A. L. Kuhl, H. Reichenbach, J. B. Bell and V. E. Beckner, "Reactive Blast Wave from Composite Charges", *Proceedings of the 14th Detonation Symposium*, April, 2010.
85. A. L. Kuhl, J. B. Bell and V. E. Beckner, "Heterogeneous continuum model of aluminum particle combustion in explosions," *Combustion, Explosion and Shock Waves*, Vol. 46(4), 2010.
86. P.-T. Bremer, G. Weber, J. Tierny, V. Pascucci, M. Day and J. Bell, "A Topological Framework for the Interactive Exploration of Large Scale Turbulent Combustion", *Proceedings of the 5th IEEE International Conference on e-Science* p. 247-254 (2009).
87. A. Donev, E. Vanden-Eijnden, A. Garcia, and J.B. Bell, "On the Accuracy of Explicit Finite-Volume Schemes for Fluctuating Hydrodynamics", *Communications in Applied Mathematics and Computational Science*, 5, 149-197, 2010.
88. N. Vasudeo, T. Echehki, M. Day, and J. Bell, "The regime diagram for premixed flame kernel-vortex interactions - revisited", *Physics of Fluids*, Vol. 22, Issue 4, 2010.
89. C. C. Joggerst, A. Almgren, J. Bell, Alexander Heger, Daniel Whalen, and S. E. Woosley, "Primordial Core-Collapse Supernovae and the Chemical Abundances of Metal-Poor Stars," *Astrophysical Journal*, 709, 11-26, January 2010.

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91. M. Zingale, A. S. Almgren, J. B. Bell, A. Nonaka, and S. E. Woosley, "Low Mach Number Modeling of Type Ia Supernovae. IV. White Dwarf Convection", *Astrophysical Journal*, 704, 196-210, 2009.
92. M. S. Day, J. B. Bell, R. K. Cheng, S. Tachibana, V. E. Beckner, and M. J. Lijewski, "Cellular burning in lean premixed turbulent hydrogen-air flames: coupling experimental and computational analysis at the laboratory scale", *SciDAC 2009, J. of Physics: Conference Series*, San Diego, California, July 2009.
93. S.E. Woosley, A.S. Almgren, A.J. Aspden, J.B. Bell, D. Kasen, A.R. Kerstein, H. Ma, A. Nonaka and M. Zingale, "Type Ia Supernovae: Advances in Large Scale Simulation", *SciDAC 2009, J. of Physics: Conference Series*, San Diego, California, July 2009.
94. A. S. Almgren, J. B. Bell, A. Nonaka, M. Zingale, "A New Low Mach Number Approach in Astrophysics", *Computers in Science and Engineering*, vol. 11, no. 2, pp. 24-33, March/April 2009.
95. M. Day, J. Bell, P.-T. Bremer, V. Pascucci, V. Beckner, M. Lijewski, "Turbulence effects on cellular burning structures in lean premixed hydrogen flames", *Combustion and Flame*, 156, 1035-1045, 2009.
96. S. E. Woosley, D. Kasen, H. Ma, G. Glatzmaier, A. J. Aspden, J. B. Bell, M. S. Day, A. R. Kerstein, V. Sankaran, F. Ropke, "Type Ia Supernovae", *Proceedings of Science*, 10th Symposium on Nuclei in the Cosmos, July 27 - August 1 2008, Mackinac Island, Michigan, USA.
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99. S. E. Woosley, A. J. Aspden, J. B. Bell, A. R. Kerstein, V. Sankaran, "Numerical simulation of low Mach number reacting flows", *SciDAC 2008, J. of Physics: Conference Series*, Seattle Washington, July 2008.
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103. D. E.A. van Odyck, J. Bell, F. Monmont and N. Nikiforakis, "The mathematical structure of multiphase thermal models of flow in porous media", *Proceedings of the Royal Society A*, 465:523-549, 2009.
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