JOHN A. TURNER

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MOTIVATION

Working with highly-productive teams to solve science and engineering challenges through large-scale computational modeling and simulation

CLEARANCE

Active U.S. Department of Energy "Q" clearance.

RESEARCH AND PROFESSIONAL EXPERIENCE

2008 - Present

Distinguished R&D Staff
Oak Ridge National Laboratory (ORNL), Oak Ridge, Tennessee

Computational Engineering Program Director (2019-present)
Computing and Computational Sciences Directorate (http://computing.ornl.gov/)
- responsible for developing relationships that ensure modeling, simulation, and high-performance computing expertise is being applied to challenges in applied science and engineering

Group Leader, Computational Engineering and Energy Sciences (CEES) (2008-2019)
Computer Science and Mathematics Division (http://www.csm.ornl.gov/)
Computing and Computational Sciences Directorate (http://computing.ornl.gov/)
- technical leadership and management focused on building simulation tools to bring advances in large-scale, high-performance computing to bear on applications of national interest, such as nuclear energy, energy storage systems, and additive manufacturing

Principle Investigator, Transforming Additive Manufacturing through Exascale Simulation (2016-present)
ExaAM (http://exaam.org/) *is a project funded by the U.S. Department of Energy's (DOE's) Exascale Computing Project* (https://exascaleproject.org/)
- lead multi-institutional team developing new simulation environment for metal additive manufacturing (3D printing) for future Exascale computing systems

ORNL Lead, High Performance Computing for Manufacturing (2015-present)
HPC4Mfg (http://hpc4mfg.llnl.gov/) *is a program funded by the DOE's Energy Efficiency and Renewable Energy (EERE) Advanced Manufacturing Office (AMO)*
- solicit proposals from industry, review and select projects, and manage execution

Joint Faculty Professor (2015-present)
Bredesen Center for Interdisciplinary Research and Graduate Education
University of Tennessee, Knoxville, Tennessee (http://bredesencenter.utk.edu/)

Joint Faculty Professor (2014-2019)
SimCenter: National Center for Computational Engineering
College of Engineering and Computer Science (http://utc.edu/simcenter)
University of Tennessee at Chattanooga, Chattanooga, Tennessee

Chief Computational Scientist (2013-2016)
Virtual Reactor Integration Focus Area Lead (2010-2013)
Consortium for Advanced Simulation of Light-Water Reactors (CASL) (http://www.casl.gov/)
- technical leadership and program management of the software infrastructure and coupled physics capability development for CASL, managing a $4-5 million per year

geographically-distributed scientific / numerical software project

Director, Center for Accelerated Application Readiness (CAAR) (2009-2010)

- responsible for preparing applications for the NVIDIA GPU-accelerated Cray XK7 Oak Ridge Leadership Computing (OLCF) platform, Titan (http://www.olcf.ornl.gov/titan/)

2001 - 2008

Group Leader, Computational Physics Group (CCS-2) (2004-2008)

Los Alamos National Laboratory (LANL), Los Alamos, New Mexico

- during this period, CCS-2 was composed of over 70 scientists, students, administrative and technical staff; responsible for budget (approx. $15 million), safety, security, operations, organization, and technical direction of the group, which conducted research in the modeling and simulation of physical processes
- during FY07, led the Advanced Algorithms Team for Roadrunner, LANL's petascale high-performance computing platform (https://en.wikipedia.org/wiki/IBM_Roadrunner/)

Technical Staff Member (2001-2004)

Los Alamos National Laboratory (LANL), Los Alamos, New Mexico

- built UbikSolve, a portable, object-based toolkit for the solution of linear systems of equations by a variety of iterative methods (primarily Krylov subspace methods); UbikSolve used MPI-based gather/scatter library PGSLib for parallel execution
- secured funding and support for deployment of SourceForge Enterprise Edition; subsequently adopted by most major code efforts at LANL, leading to dramatic improvement in software development practices across the institution

1997 - 2001

Senior Research Associate

Blue Sky Studios, Inc., White Plains, New York (http://blueskystudios.com/)

- credits on the Academy of Motion Picture Arts and Sciences Award-winning short animated film Bunny (http://imdb.com/title/tt0179011) and the Oscar-nominated full-length animated feature film, Ice Age (http://imdb.com/title/tt0268380)
- developed and deployed a 2D incompressible fluid flow tool used for the simulation and rendering of flowing lava in Ice Age
- contributed to software to model behavior of cloth, specifically implementation of new, more efficient, implicit solution technique

1990 - 1997

Technical Staff Member

Los Alamos National Laboratory (LANL), Los Alamos, New Mexico

- built Fortran 77 and Fortran 90 versions of JTpack, a portable, object-based toolkit for the solution of linear systems of equations by a variety of iterative methods (primarily Krylov subspace methods); JTpack used an MPI-based gather/scatter library (PGSLib) for efficient parallel execution; developed graphical user interface using Tcl/Tk (https://en.wikipedia.org/wiki/Tcl/)
- implemented ASPEN, a Simplified P_N algorithm for photon transport on a 2D Lagrangian (structured but non-orthogonal) mesh; ASPEN uses JTpack as one option for the solution of linear systems in the underlying P_1 package
- core developer of Truchas (https://github.com/truchas/), an unstructured-mesh code for modeling 3D incompressible fluid flow with surface tension, heat transfer, phase change (solidification, melting); used JTpack, then UbikSolve, for solution of linear systems
- performed neutronic analysis of a MOderated, Heat pipe cooled, Thermionic space Reactor concept (MOHTR)

1985 - 1989

Research Assistant

Dept. of Nuclear Engineering, North Carolina State Univ. (NCSU), Raleigh, N.C.

EDUCATION AND TRAINING

North Carolina State University, Nuclear Engineering, Ph.D., 1990, Raleigh, North Carolina
Dissertation Title: Two-Phase Subchannel Analysis on Advanced Architecture Computers

North Carolina State University, Nuclear Engineering, B.S., 1983, Raleigh, North Carolina

HONORS AND AWARDS

2016 – R&D 100 Award for the Virtual Environment for Reactor Applications (VERA), the simulation environment developed and deployed by the Consortium for Advanced Simulation of Light-Water Reactors (CASL), the ORNL-led DOE Innovation Hub on Modeling and Simulation for Nuclear Energy (http://www.rd100conference.com/awards/winners-finalists/6631/virtual-environment-reactor-applications-vera/)

2015 – UT-Battelle Significant Event Award for the release of the Virtual Integrated Battery Environment (VIBE)

2014 – International Data Corporation (IDC) High-Performance Computing Innovation Excellence Award for core physics simulations of the Westinghouse AP1000® PWR startup core using VERA

2013 – UT-Battelle Significant Event Award for Deployment of the first "Computational Test Stand" for CASL

2012 – UT-Battelle Significant Event Award for the release of version 2.0 of VERA

2011 – UT-Battelle Recognition for exceptional mentoring of Research Alliance in Math and Science summer student

2011 – UT-Battelle Significant Event Award for support to the U.S. Department of Energy in response to the damaged Fukushima Dai-ichi nuclear reactors

2010 – UT-Battelle Legacy Achievement Award for successfully capturing CASL, the U.S. Department of Energy's first Energy Innovation Hub

2008 - Los Alamos National Laboratory Distinguished Performance Award recipient as member of Roadrunner Team

2007 - Los Alamos Awards Program (LAAP) recipient for Roadrunner Advanced Algorithms Assessment Team achievements

2007 - Los Alamos Awards Program (LAAP) recipient for FY07 Entrepreneurial activities

2007 - Los Alamos Awards Program (LAAP) recipient for leadership

1989 - Sigma Xi Scientific Research Society

1983 - Institute of Nuclear Power Operations scholarship recipient

1982 - Tau Beta Pi Engineering Honor Fraternity

SUGGESTED REFERENCES

Bo Ewald, President, D-Wave Systems U.S.
https://www.linkedin.com/in/bo-ewald-50a72b29/

Alex Larzelere, Senior Fellow, Council on Competitiveness and President, Larzelere & Associates LLC
https://www.linkedin.com/in/alex-larzelere-6049b43

Stephen R. Lee, former Deputy Director, Exascale Computing Project
Los Alamos National Laboratory (retired)
https://www.linkedin.com/in/srlee

Gil Weigand, former Director of Strategic Programs (retired)
Computing and Computational Sciences Directorate, Oak Ridge National Laboratory

Others available on request

SELECTED PUBLICATIONS

1. 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. (Henry) Huang, A. Hungerford, D. Kasen, P. R. C. Kent, T. Kolev, D. B. Kothe, A. Kronfeld, Y. Luo, P. Mackenzie, D. McCallen, B. Messer, S. Mniszewski, C. Oehmen, A. Perazzo, D. Perez, D. Richards, W. J. Rider, R. Rieben, K. Roche, A. Siegel, M. Sprague, C. Steefel, R. Stevens, M. Syamlal, M. Taylor, J. Turner, J.-L. Vay, A. F. Voter, T. L. Windus, and K. Yelick, "Exascale applications: skin in the game," Phil. Trans. R. Soc. A, vol. 378, no. 2166, p. 20190056, Mar. **2020**. doi:10.1098/rsta.2019.0056.
2. J. Turner, S. Kalnaus, H. Wang, S. Simunovic, A. Kumar, S. Gorti, and S. Allu, "Crashworthiness models for automotive batteries," National Highway Traffic Safety Administration, Washington, DC, DOT HS 812 736, May 2019. https://rosap.ntl.bts.gov/view/dot/41005.
3. B. Radhakrishnan, S. B. Gorti, J. A. Turner, R. Acharya, J. A. Sharon, A. Staroselsky, and T. El-Wardany, "Phase Field Simulations of Microstructure Evolution in IN718 using a Surrogate Ni–Fe–Nb Alloy during Laser Powder Bed Fusion," Metals, vol. 9, no. 1, p. 14, Dec. **2018**. doi:10.3390/met9010014.
4. S. Kalnaus, H. Wang, T. R. Watkins, A. Kumar, S. Simunovic, J. A. Turner, and P. Gorney, "Effect of packaging and cooling plates on mechanical response and failure characteristics of automotive Li-ion battery modules," *Journal of Power Sources*, vol. 403, pp. 20–26, Nov. **2018**. doi:10.1016/j.jpowsour.2018.09.071.
5. Y. S. Lee, M. M. Kirka, R. B. Dinwiddie, N. Raghavan, J. Turner, R. R. Dehoff, and S. S. Babu, "Role of scan strategies on thermal gradient and solidification rate in electron beam powder bed fusion," *Additive Manufacturing*, vol. 22, pp. 516–527, Aug. **2018**. doi:10.1016/j.addma.2018.04.038.
6. S. Kalnaus, Y. Wang, J. Li, A. Kumar, and J. A. Turner, "Temperature and strain rate dependent behavior of polymer separator for Li-ion batteries," Extreme Mechanics Letters, vol. 20, pp. 73–80, Apr. **2018**. doi:10.1016/j.eml.2018.01.006.
7. S. Kalnaus, A. Kumar, Y. Wang, J. Li, S. Simunovic, J. A. Turner, and P. Gorney, "Strain distribution and failure mode of polymer separators for Li-ion batteries under biaxial loading," J. Power Sources, vol. 378, pp. 139–145, Feb. **2018**. doi:10.1016/j.jpowsour.2017.12.029.
8. J. A. Turner, S. Allu, S. Kalnaus, S. Simunovic, H. Wang, "Coupled Multiscale Modeling of Batteries with AMPERES," Gordon Research Conference on Batteries: The Opportunity in the Invisible: Integrating Theory, Synthesis, Characterization and System Validation for the Battery of Tomorrow, Ventura, CA, Feb, **2018**. https://www.grc.org/batteries-conference/2018/.
9. H. Wang, T. R. Watkins, S. Simunovic, P. R. Bingham, S. Allu, and J. A. Turner, "Fragmentation of copper current collectors in Li-ion batteries during spherical indentation," Journal of Power Sources, vol. 364, pp. 432–436, Oct. **2017**. doi:10.1016/j.jpowsour.2017.08.068.
10. N. Raghavan, S. S. Babu, R. Dehoff, S. Pannala, S. Simunovic, M. Kirka, J. Turner, and N. Carlson, "Corrigendum to 'Numerical modeling of heat-transfer and the influence of process parameters on tailoring the grain morphology of IN718 in electron beam additive manufacturing' [Acta Mater. 112C (2016) 303–314]," Acta Materialia, Sep. **2017**. doi:10.1016/j.actamat.2017.08.067.
11. N. Raghavan, S. Simunovic, R. Dehoff, A. Plotkowski, J. Turner, M. Kirka, and S. Babu, "Localized Melt-Scan Strategy for Site Specific Control of Grain Size and Primary Dendrite Arm Spacing in Electron Beam Additive Manufacturing," Acta Materialia, vol. 140, pp. 375–387, Aug. **2017**. doi:10.1016/j.actamat.2017.08.038.
12. J. A. Turner, "Goals of the Exascale Additive Manufacturing Project (ExaAM)," Gordon Research Conference on Physical Metallurgy: Frontiers of Quantification and Predictive Capability, Biddeford, ME, July, **2017**. https://www.grc.org/physical-metallurgy-conference/2017/.

13. S. Kalnaus, Y. Wang, and J. A. Turner, “Mechanical behavior and failure mechanisms of Li-ion battery separators,” Journal of Power Sources, vol. 348, pp. 255–263, Apr. **2017**. doi:10.1016/j.jpowsour.2017.03.003.
14. H. Wang, A. Kumar, S. Simunovic, S. Allu, S. Kalnaus, J. A. Turner, J. C. Helmers, E. T. Rules, C. S. Winchester, and P. Gorney, “Progressive mechanical indentation of large-format Li-ion cells,” Journal of Power Sources, vol. 341, pp. 156–164, Feb. **2017**. doi:10.1016/j.jpowsour.2016.11.094.
15. T. DebRoy, W. Zhang, J. Turner, and S. S. Babu, “Building digital twins of 3D printing machines,” Scripta Materialia, Dec. **2016**. doi:10.1016/j.scriptamat.2016.12.005.
16. U.S. National Committee on Theoretical and Applied Mechanics, Board on International Scientific Organizations, Policy and Global Affairs, and National Academies of Sciences, Engineering, and Medicine, Predictive Theoretical and Computational Approaches for Additive Manufacturing: Proceedings of a Workshop. Washington, D.C.: National Academies Press, **2016**. doi:10.17226/23646.
17. J. A. Turner, K. Clarno, M. Sieger, R. Bartlett, B. Collins, R. Pawlowski, R. Schmidt, and R. Summers, “The virtual environment for reactor applications (VERA): Design and Architecture,” Journal of Computational Physics, Sep. **2016**. doi:10.1016/j.jcp.2016.09.003.
18. S. Allu, S. Kalnaus, S. Simunovic, J. Nanda, J. A. Turner, and S. Pannala, “A three-dimensional meso-macroscopic model for Li-Ion intercalation batteries,” Journal of Power Sources, vol. 325, pp. 42–50, Sep. **2016**. doi:10.1016/j.jpowsour.2016.06.001.
19. S. Allu, S. Kalnaus, A. Kumar, S. Pannala, S. Simunovic, H. Wang, and J. A. Turner, “A Computational Analysis of Battery Response during Onset of Internal Short Under Mechanical Abuse Conditions,” vol. MA2016-02, no. 6, pp. 891–891, Sep. **2016**. http://ma.ecsdl.org/content/MA2016-02/6/891.
20. A. Kumar, S. Kalnaus, S. Simunovic, S. Gorti, S. Allu, and J. A. Turner, “Communication—Indentation of Li-Ion Pouch Cell: Effect of Material Homogenization on Prediction of Internal Short Circuit,” Journal of The Electrochemical Society, vol. 163, no. 10, pp. A2494–A2496, Sep. **2016**. doi:10.1149/2.0151613jes.
21. S. Kalnaus, A. Kumar, D. T. Lebrun-Grandie, S. Simunovic, S. R. Slattery, J. A. Turner, H. Wang, S. Allu, S. B. Gorti, and B. R. Turcksin, “Crashworthiness Models for Automotive Batteries - Report on Project 2088-A031-15 for DOT/NHTSA,” Oak Ridge National Laboratory, ORNL/TM--2016/435, 1337031, Jul. **2016**. doi:10.2172/1337031.
22. N. Raghavan, R. Dehoff, S. Pannala, S. Simunovic, M. Kirka, J. Turner, N. Carlson, and S. S. Babu, “Numerical modeling of heat-transfer and the influence of process parameters on tailoring the grain morphology of IN718 in electron beam additive manufacturing,” Acta Materialia, vol. 112, pp. 303–314, Jun. **2016**. doi:10.1016/j.actamat.2016.03.063.
23. J. A. Turner, Ed., Progress in Modeling and Simulation of Batteries, vol. PT-176. SAE International, Jun. **2016**. http://books.sae.org/pt-176/.
24. J. A. Turner, “Mechanistic Simulation of Short-Circuits and Thermal Runaway Due to Mechanical Abuse,” Gordon Research Conference on Batteries: Fundamental Tools for Designing the Next Generation of Electrochemical Energy Storage, Ventura, CA, Feb, **2016**. https://www.grc.org/batteries-conference/2016/.
25. J. Turner, “Modeling and Simulation for Additive Manufacturing,” Natl. Acad. of Engineering, Workshop on Predictive Theoretical and Computational Approaches for Additive Manufacturing, Washington, D.C., Oct **2015.** http://sites.nationalacademies.org/PGA/biso/IUTAM/PGA_168737.
26. “Advanced Simulation for Additive Manufacturing: Meeting Challenges Through Collaboration (Workshop Report for U.S. DOE/EERE/AMO),” J. Turner, C. Blue, S. Babu, ORNL Report TM-2015/324, Sep, **2015.** http://info.ornl.gov/sites/publications/files/Pub56487.pdf.

27. "Multiscale modeling and characterization for performance and safety of lithium-ion batteries," S. Pannala, J. A. Turner, S. Allu, W. Elwasif, S. Kalnaus, S. Simunovic, A. Kumar, J. J. Billings, H. Wang, and J. Nanda, J. Applied Physics 118, 072017, Aug, **2015.** doi:10.1063/1.4927817.
28. "Accelerated Application Development: The ORNL Titan Experience," W. Joubert, R. Archibald, M. Berrill, W. M. Brown, M. Eisenbach, R. Grout, J. Larkin, J. Levesque, B. Messer, M. Norman, B. Philip, R. Sankaran, A. Tharrington, J. Turner, Computers and Electrical Engineering, special issue on Optimization of Parallel Scientific Applications with Accelerated HPC, Aug, **2015.** doi:10.1016/j.compeleceng.2015.04.008.
29. "Safer Batteries Through Coupled Multiscale Modeling," J. A. Turner, S. Allu, M. Berrill, W. Elwasif, S. Kalnaus, A. Kumar, D. Lebrun-Grandie, S. Pannala, S. Simunovic, Procedia Computer Science (51) **2015**, pp. 1168-1177. doi:10.1016/j.procs.2015.05.286.
30. "Three-dimensional discrete ordinates reactor assembly calculations on GPUs," T. M. Evans, W. Joubert, S. P. Hamilton, S. R. Johnson, J. A. Turner, G. G. Davidson, and T. M. Pandya, Joint Intl. Conf. on Mathematics and Computation (M&C), Supercomputing in Nuclear Applications (SNA), and the Monte Carlo (MC) Method, Apr, **2015**.
31. "Design of a High-Fidelity Core Simulator for Analysis of Pellet-Clad Interaction," R. P. Pawlowski, K. T. Clarno, R. O. Montgomery, R. Salko, T. M. Evans, J. A. Turner, and D. Gaston, Joint Intl. Conf. on Mathematics and Computation (M&C), Supercomputing in Nuclear Applications (SNA), and the Monte Carlo (MC) Method, Apr, **2015**.
32. "High-Fidelity Modeling of Pellet-Clad Interaction Using the CASL Virtual Environment for Reactor Applications," K. T. Clarno, R. P. Pawlowski, R. O. Montgomery, T. M. Evans, B. S. Collins, B. Kochunas, D. Gaston, and J. A. Turner, Joint Intl. Conf. on Mathematics and Computation (M&C), Supercomputing in Nuclear Applications (SNA), and the Monte Carlo (MC) Method, Apr, **2015**.
33. "AP1000 PWR Startup Core Modeling and Simulation with VERA-CS," F. Franceschini, A.T. Godfrey, S. Stimpson, T. Evans, B. Collins, J.C. Gehin, J.A. Turner, A. Graham, T. Downar, Advances in Nuclear Fuel Management V (ANFM 2015), Mar, **2015**.
34. M. A. Martin, C-F Chen, P. P. Mukherjee, S. Pannala, J-F Zietiker, J. A. Turner, and D. Ranjan, "Morphological Influence in Lithium-Ion Battery 3D Electrode Architectures," J. Electrochem. Soc. Mar, **2015** 162(6): A991-A1002. doi:10.1149/2.0631506jes.
35. "Crash Models for Automotive Batteries (DOT/NHTSA Project Report)," J. A. Turner, S. Allu, S. B. Gorti, S. Kalnaus, A. Kumar, D. T. Lebrun-Grandie, S. Pannala, S. Simunovic, S. R. Slattery, H. Wang, ORNL Report TM-2015/366, Feb, **2015**.
36. "An Approach for Coupled-Code Multiphysics Core Simulations from a Common Input," R. Schmidt, K. Belcourt, R. Hooper, R. Pawlowski, K. Clarno, S. Simunovic, S. Slattery, J. Turner, S. Palmtag, Annals of Nuclear Energy, Dec, **2014**, ISSN 0306-4549, doi:10.1016/j.anucene.2014.11.015.
37. "A Generalized 3D Multiphysics Model for Li-Ion Intercalation Batteries," S. Allu, S. Pannala, J. Nanda, S. Simunovic, J. Turner, ECS Meeting, Oct, **2014.** http://ma.ecsdl.org/content/MA2014-02/1/34.abstract.
38. "Mesoscale Models for Mechanics of Active Materials in Li-Ion Batteries," S. Simunovic, A. Stershic, S. Kalnaus, S. Allu, S. Pannala, J. Turner, ECS Meeting, Oct, **2014**, http://ma.ecsdl.org/content/MA2014-02/1/38.abstract.
39. "Coupled Neutronics and Thermal-Hydraulic Solution of a Full-Core PWR Using VERA-CS," S. Palmtag, K. Clarno, G. Davidson, T. Evans, R. Salko, J. Turner, K. Belcourt, R. Hooper, R. Schmidt, PHYSOR 2014, Sept, **2014**.
40. J. A. Turner, "3D Predictive Simulation of Battery Systems," Gordon Research Conference on Batteries: Advances in Characterization, Analysis, Theory and Modeling of Basic Processes, Ventura, CA, Mar, **2014**. https://www.grc.org/batteries-conference/2014/.

41. “A new open computational framework for highly-resolved coupled 3D multiphysics simulations of Li-Ion Cells,” S. Allu, S. Kalnaus, W. Elwasif, S. Simunovic, J. A. Turner, S. Pannala, J. Power Sources, Vol 246, Jan, **2014**, p. 876-886, ISSN 0378-7753. doi:10.1016/j.jpowsour.2013.08.040.
42. “High-Fidelity Neutronic Analysis of the Westinghouse AP1000,” T. Evans, F. Franceschini, A. Godfrey, S. Hamilton, W. Joubert, J. Turner, Consortium for Advanced Simulation of Light-Water Reactors (CASL) Report CASL-U-2013-0231-0000, Dec, **2013**.
43. “Coupled COBRA-TF/MAMBA2D Multiphysics Models for Seabrook 1 Cycle 5 Assembly G70 5x5 rod array,” J. Secker, R. Schmidt, N. Belcourt, R. Hooper, R. Sankaran, J. A. Turner, Consortium for Advanced Simulation of Light-Water Reactors (CASL) Report CASL-I-2013-0191-0000, Sep, **2013**.
44. "Virtual Environment for Reactor Applications (VERA): Snapshot 3.1," J. A. Turner, Consortium for Advanced Simulation of Light-Water Reactors (CASL) Report CASL-U-2013-0164-000, Jul, **2013**. http://www.casl.gov/docs/CASL-U-2013-0164-000.pdf.
45. “Revolutionary Radiation Transport for Next-Generation Predictive Multi-Physics Modeling and Simulation,” J. C. Wagner, T. M. Evans, S. W. Mosher, D. E. Peplow, J. A. Turner, ORNL Report 41138, **2013**.
46. “Improvements, Enhancements, and Optimization of COBRA-TF,” R. Salko, M. Avramova, R. Hooper, S. Palmtag, E. Popov, J. Turner, Intl. Conf. on Mathematics and Computational Methods Applied to Nuclear Sci. and Engineering, May 5-9, **2013**.
47. "Virtual Environment for Reactor Applications (VERA): Snapshot 2.0," J. A. Turner, Consortium for Advanced Simulation of Light-Water Reactors (CASL) Milestone L1:5.01, Jun, **2012**.
48. “Electrochemical and Transport Behavior of Lithium Ion Battery 3-D Electrode Architectures,” M. Martin, P. Mukherjee, S. Pannala, S. Allu, D. Ranjan, J. Turner, ECS Meeting, Seattle, May, **2012.** http://ma.ecsdl.org/content/MA2012-01/27/1050.abstract.
49. J. A. Turner, “A Multi-Scale Modeling Framework for Li-Ion Batteries,” Gordon Research Conference on Batteries: Advanced Characterization, Theory and Mechanisms of Processes in Rechargeable Batteries Across Length Scales, Ventura, CA, Mar, **2012**. https://www.grc.org/batteries-conference/2012/.
50. “Hierarchical Models for Batteries: Overview with Some Case Studies,” S. Pannala, P. Mukherjee, S. Allu, J. Nanda, S. Martha, N. Dudney, J. Turner, Advanced Automotive Battery Conference, Orlando, FL, Feb, **2012**.
51. “A micro-macroscopic volume-averaged model for batteries,” S. Pannala, S. Allu, P. Mukherjee, J. Nanda, N. Dudney, S. Martha, and J. Turner, Electronic Materials and Applications 2012, American Ceramic Society, Orlando, Jan, **2012.**
52. “Modeling and Simulation of Battery Systems,” P. Mukherjee, S. Pannala, and J. Turner, chapter in Handbook of Battery Materials, Editors C. Daniel and J. O. Weinheim, Wiley-VCH Verlag GmbH & Co. KGaA, **2011.** doi:10.1002/9783527637188.
53. Wagner, J.C., T.M. Evans, S.W. Mosher, D.E. Peplow, and J.A. Turner, “Hybrid and Parallel Domain-Decomposition Methods Development to Enable Monte Carlo for Reactor Analyses,” Prog. Nucl. Sci. Tech. **2**, 815-820 (**2011**).
54. “A Multi-scale Modeling Framework for Li-Ion Batteries,” J. Turner, P. Mukherjee, S. Pannala, and S. Allu, 7th Annual Intl. Conf. on Lithium Battery Power (invited), Las Vegas, NV, Nov, **2011**.
55. “Predictive System Simulation Capability for Evaluating Safety and Performance of Batteries,” S. Pannala, J. Nanda, A. Sabau, H. Bilheux, P. Mukherjee, S. Allu, C. Shaffer, S. Voisin, J. Turner, W. Shelton Jr., N. Dudney, ORNL Report 32620, Oct, **2011**.
56. “Particle Morphology and Interactions in the Lithium Ion Battery Electrode,” S. Pannala P. Mukherjee, S. Allu, J. Nanda, N. Dudney, and J. Turner, ECS Meeting, Boston, MA, Oct, **2011.** http://ma.ecsdl.org/content/MA2011-02/15/730.abstract.

57. "Domain Model Specification for VERA: Version 1.0," C. Baker, R. Bartlett, K. Clarno, B. Collins, T. Evans, R. Pawlowski, R. Schmidt, J. Turner, Consortium for Advanced Simulation of Light-Water Reactors (CASL) Report CASL-U-2011-0169-0000, Sep, **2011**.
58. "A Micro-mesoscopic Model for Li-Ion Intercalation Batteries," S. Pannala, P. Mukherjee, S. Allu, J. Nanda, S. Martha, N. Dudney, and J. Turner, ECS Meeting, Montreal, Canada, May, **2011.** http://ma.ecsdl.org/content/MA2011-01/10/509.abstract.
59. "Initial Validation of the AMP Nuclear Fuel Performance Code," S. Allu, J. Banfield, P. Barai; J. Billings, K. T. Clarno, W. K. Cochran, G. A. Dilts, S. Kadioglu, J. Lee, G. I. Maldonado, R. Martineau, B. Mihalia, L. Ott, S. Pannala, B. Philip, R. Sampath, S. Simunovic, J. A. Turner, C. Unal, G. Yesilyurt, ANS winter meeting, **2010**.
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