

## 2008 Publications

### Journals and Chapters

H. Chen, Y. T. Chen, and J. Zhang, "Cellular automaton modeling on the corrosion/oxidation mechanism of steel in liquid metal environment," *PROGRESS IN NUCLEAR ENERGY*, Vol. 50, pp.587-593, 2008.

Y. T. Chen, T. Tan, and H. Chen, Oxidation Companioned by Scale Removal: Initial and Asymptotical Kinetics, *JOURNAL OF NUCLEAR SCIENCE AND TECHNOLOGY*, 45(7), 2008, pp. 1-6.

S. S. Deshmukh, R. Boehm, Review of Modeling Details Related to Renewably Powered Hydrogen Systems, *RENEWABLE & SUSTAINABLE ENERGY REVIEWS*, 12(9), 2008, 2301-2330.

T. Gemci, V. Ponyavin, Y. Chen, H. Chen, R. Collins, "Computational Model of Airflow in Upper 17 Generations of Human Respiratory Tract," *Journal of Biomechanics*, 41, 2008, pp.2047-2054.

J. Li, Y. T. Chen, and V. Elander, Mathematical and numerical study of wave propagation in negative-index materials, *COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING*, 197, 2008, pp. 3976-3987.

J. Li and Y.T. Chen, Uniform Convergence Analysis for Singularly Perturbed Elliptic Problems with Parabolic Layers, *NUMERICAL MATHEMATICS: THEORY, METHODS AND APPLICATIONS*, 1(2), 2008, pp. 138-149.

J. Li and Y. T. Chen, Finite Element Study of Time-dependent Maxwell's Equations in Dispersive Media, *NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS*, 24, pp. 1203-1221, 2008.

G. Kuchi, V. Ponyavin, Y. T. Chen, S. Sherman, and A. E. Hechanova, Numerical of High Temperature Shell and Tube Heat Exchanger and Chemical Decomposer for Hydrogen Production, *INTERNATIONAL JOURNAL OF HYDROGEN ENERGY*, 33, 2008, pp. 5460-5468.

V. Nagarajan, V. Ponyavin, Y.T. Chen, M. E. Vernon, P. Pickard, and A. E. Hechanova, Numerical Study of Sulfur Trioxide Decomposition in Bayonet Type Heat Exchanger and Chemical Decomposer with Porous Media Zone and Different Packed Bed Designs, *INTERNATIONAL JOURNAL OF HYDROGEN ENERGY*, 33, 2008, pp. 6445-6455.

J. Nie, Y. T. Chen, R. F. Boehm, and S. P. Katukota, A Photo-electrochemical Model of Proton Exchange Water Electrolysis for Hydrogen production, *JOURNAL OF HEAT TRANSFER*, 130(4), 2008, 042409/pp.1-6.

V. Ponyavin, Y. T. Chen, J. Cutts, M. Wilson, and A. E. Hechanova, Calculation of Fluid Flow Distribution Inside a Compact Ceramic High Temperature Heat Exchanger and Chemical Decomposer, *JOURNAL OF FLUIDS ENGINEERING*, 130(6), 2008, 061104, 1-8.

V. Ponyavin, Y. T. Chen, A. E. Hechanova, and M. Wilson, "Numerical modeling of compact high temperature heat exchanger and chemical decomposer for hydrogen production, *HEAT AND MASS TRANSFER* (2008), 44:1379-1389.

V. Ponyavin, Y. T. Chen, T. Mohamed, M. Trabia, A. E. Hechanova, and M. Wilson, Parametric Study of Sulfuric Acid Decomposer for Hydrogen Production, *PROGRESS IN NUCLEAR ENERGY*, 50, pp.427-433, 2008.

S. Rosta, R. Hurt, R. Boehm, M. Hale, Monitoring of a Zero Energy House, *JOURNAL OF SOLAR ENERGY ENGINEERING*, 130, 021006, 2008.

S. B. Sadineni, R. Hurt, C. Halford, R. F. Boehm. "Theory and Experimental Results for Solar Still Operation." ENERGY, 2008, 33(1), pp.71-88.

T. Tan, Y. T. Chen, and H. Chen, "A Diffusion Controlling Oxidation Model with Scale Removal in Oxygen Containing Liquid Flow," Computational Material Science, 44, 2008, pp. 750-759.

T. Tan, Y. T. Chen, and H. Chen, Theoretical Modeling and Numerical Simulation of the Corrosion and Precipitation in Non-isothermal Liquid Lead Alloy Pipe/loop Systems, HEAT AND MASS TRANSFER, 2008, 44:355-366.

T. Tan, Y. T. Chen, and H. Chen, An Improved Mesoscopic Oxidation Model of Metals in Lead Bismuth Eutectic, COMPUTATIONAL MATERIALS SCIENCE, 43, (2008), pp. 251-267.

### **Refereed Conference Papers**

J. Nie, Y. T. Chen, and R. F. Boehm, "Numerical modeling of two-phase flow in a bipolar plate of a PEM electrolysis cell," ASME International Mechanical Engineering Congress and Exposition, Oct 31-Nov 6, 2008, Boston, Massachusetts (IMECE2008-68913)

T. Tan and Y. T. Chen, "Numerical Investigation of Oxide Layer Growth of Stainless Steel LBE at a Mesoscopic Level," ASME International Mechanical Engineering Congress and Exposition, Oct 31-Nov 6, 2008, Boston, Massachusetts (IMECE2008-67961)

T. Tan, Y. T. Chen, and X. Tan, "Natural Convection Induced Oxygen Transport in Liquid Lead Bismuth Eutectic," the 7th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Operation and Safety, (NUTHOS-7), October 5-9, 2008, Seoul, Korea.

T. Tan and Y. T. Chen, "Review of Study on Solid Particle Solar Receivers," 2nd International Forum on Heat Transfer (IFHT2008), September 17 -19, 2008, Tokyo, Japan.

M. Campbell, S. Deshmukh, R. Boehm, R. Hurt, Modeling Solar Impacts on Hydrogen Production from Electrolysis, Proceedings of Energy Sustainability Conference 2008, August 10-14, 2008. Jacksonville, Florida, USA.

Z. Chen, Y. T. Chen, and T. Tan, "Numerical Analysis on the Performance of the Solid solar Particle Receiver with the Influence of Aerowindow," ASME Fluids Engineering Division Summer Conference, Aug 10-14, 2008, Jacksonville, Florida, USA. (FEDSM 2008-55285)

H. Deng and R. Boehm, An Estimation of the Performance Limits of Dry Cooling on Trough Type Solar Thermal Plant, Proceedings of Energy Sustainability Conference 2008, August 10-14, 2008. Jacksonville, Florida, USA.

T. France, E. Wiemers, S. Butterworth, Y. Baghzouz, and R. Boehm, Renewable Energy for Federal Land Management Agencies in Southern Nevada, Proceedings of Energy Sustainability Conference 2008, August 10-14, 2008. Jacksonville, Florida, USA.

K. Hinderliter, I. Mahderekal, and R. Boehm, the Development of a Model for a Solar-Fired, Single Effect Absorption Chiller, Proceedings of Energy Sustainability Conference 2008, August 10-14, 2008. Jacksonville, Florida, USA.

J. Nie, Y. T. Chen, J. Wu, and K. M. Veepuri, "Explorations of improving flow uniformity in the bipolar plate of a PEM electrolysis cell using different designs," Proceedings of ASME Heat Transfer, Fluids, Energy, Solar & Nano Conferences, August 10-14, 2008, Jacksonville, FL. (FEDSM2008-55187)

J. Nie, J. Wu, Steve Cohen, B. Carter, and Y. T. Chen, "Numerical simulations of coupled flow and heat transfer distributions in a bipolar plate of the PEM electrolysis cell," Proceedings of ASME Heat Transfer, Fluids, Energy, Solar & Nano Conferences, August 10-14, 2008, Jacksonville, FL. (FEDSM2008-55188)

J. Nie, K. M. Veepuri, Y. T. Chen, and J. Wu, "A new bipolar plate of PEM electrolysis cell with uniform flow and heat transfer fields," Proceedings of ASME Heat Transfer, Fluids, Energy, Solar & Nano Conferences, August 10-14, 2008, Jacksonville, FL. (HT2008-56362)

T. Tan, Y. T. Chen, and Z. Chen, "Performance of Solid Particle Receivers with or without the Protection of an Aerowindow," ASME 2nd International Conference on Energy Sustainability, Aug 10-14, 2008, Jacksonville, Florida, USA. (ES 2008-54129)

S. B. Sadineni, R. Hurt, R. F. Boehm, "Spacing Optimization of an Inclined Solar Collector Field." ES2008-54067, ASME, Energy Sustainability 2008, August 10-14, 2008. Jacksonville, Florida, USA.

J. Wu, J. Nie, and Y. T. Chen, "Optimization of fluid flow in 3D bipolar plates," Proceedings of ASME Heat Transfer, Fluids, Energy, Solar & Nano Conferences, August 10-14, 2008, Jacksonville, FL. (FEDSM2008-55040)

M. Chang, H. T. Hsieh, Y. T. Chen, M. Hodges, G. Vandegrift, J. Copple, and J. Laidler, "Development of an Integrated Systems Engineering Modeling Package for Chemical Separation Processes under Advanced Fuel Cycle Initiative," Proceedings of ICAPP, Anaheim, CA USA, June 8-12, 2008.

M. Chang, H. T. Hsieh, Y. T. Chen, M. Hodges, G. Vandegrift, J. Copple, and J. Laidler, "Development of an Object-Oriented Integrated Systems Engineering Modeling Package Using Unified Modeling Language (UML) for Chemical Separation Processes," ICONE 2008, May 11-15, Orlando, FL, 2008.

T. Tan and Y. T. Chen, "Simulations of Metal Oxidation in LBE at a Mesoscopic Level", Proceedings of the ASME 16th International Conference on Nuclear Engineering, ICONE16, May 11-15, 2008, Orlando, Florida, USA (ICONE16-48025).

T. Tan, Y. T. Chen, and Z. Chen, "Numerical Investigation of Influences of an Aerowindow on the Performance of Solid Particle Receivers", Solar 2008-0239, May 3-8, San Diego, CA, USA.

M. R. Campbell, R. Hurt, S.B. Sadineni, R. F. Boehm, "A Solar Powered Hydrogen Generation and Filling Station." ASES 2008, Solar 2008, May 3-8, 2008, San Diego, California, USA.

Sahm, K. Stone, R. Boehm, A. Gray, Modeling a High Concentration Photovoltaic System, SOLAR 2008 Conference Proceedings, May3-8 2008, p115, San Diego, California, USA.

L. Zhu, R. Hurt, D. Correa, R. Boehm, Validated evaluation on building energy conversation features in a zero energy house, SOLAR 2008 Conference Proceedings, May 3-8 2008, p112, San Diego, California, USA.

L. Zhu, R. Hurt, D. Correa, R. Boehm, Real energy saving performance of thermal mass walls demonstrated in a zero energy house, SOLAR 2008 Conference Proceedings, May3-8 2008, p115, San Diego, California, USA.