

## Massoud Rostam-Abadi

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Founder and Principal Chemical Engineer  
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### Summary

Massoud Rostam-Abadi served as the Head of the Energy and Environmental Engineering Division of the ISGS and an Adjunct Professor of Environmental Engineering at UIUC before he retired in August 2010. Between 1983 and 2010, he managed 40 R&D programs focusing on the development of micro- and nano-engineered materials and technologies for energy and environment applications with a total grant budget exceeding \$30M. He holds 12 U.S. patents and is author/coauthor of 100 published journal articles and proceedings of conferences. He has commercialized two technologies for preparing high surface area hydrated lime (HSAHL) and on-site sorbent activation process (SAP). He has served in expert review panels of USDOE, USEPA, EPRI, State of Illinois, and United Nation Industrial Development Organization (UNIDO) addressing materials development for combustion generated air pollution control. He is founder and a Principal of three startup companies; Illinois Powered Activated Carbon (IPAC), LLC, Environmental Sorbent Engineering (ESE), LLC, and Advanced Sorbent Engineering (ASE), LLC during past 5 years. He is currently working with MIT, UC Berkeley, UIUC, University of Southern California (USC), and Sandia National Laboratory (SNL) to establish a 10 year, \$100M National Science Foundation (NSF) Smart Adsorbents and Membranes (SAM) Engineering Center.

### Education

BS, MS, Ph.D. Chemical Engineering, Wayne State University (Detroit, Michigan), 1973, 1975, 1982  
ME, Environmental Engineering, Cornell University, 1977

### Professional Experience

2016-	Founder and Principal, Advanced Sorbent Engineering, LLC; Las Cruces, NM
2014-2016	Founder and Principal, Environmental Sorbent Engineering, LLC; UIUC Research Park
2013-2016	Founder and Principal, IPAC, LLC; UIUC Research Park
2010-	Honorary Principal Chemical Engineer, Energy Research and Development, ISGS-UIUC
2000-2010	Head, Energy and Environmental Engineering, ISGS-UIUC
1999-2000	Visiting Professor, Chemical Engineering, University of Queensland, Australia
1985-2010	Adjunct Assistant, Associate, and Professor, of Environmental Engineering, UIUC
1983-2010	Associate, Full, Senior, Principal Chemical Engineer, ISGS-UIUC
1980-1982	Visiting Assistant Professor, Chemical Engineering, Cleveland State University
1977-1979	Instructor, Chemistry, Mercy College (Detroit, Michigan)
1977-1980	Instructor, Chemical Engineering, Wayne State University

### **Awards and Honors**

Professor of the Year: Department of Chemical Engineering, Cleveland State University, 1982  
Professional Achievement Award: ISGS-UIUC, 1994  
Quest Editor: Gas Separation and Purification, Vol. 10, No.1, 1996  
Mrosowski Award for Best Platform Presentation, Lehmann, C.M., Rood, M.J., and Rostam-Abadi, M.  
Tire-Derived Activated Carbons for Gas Separation, Storage and Cleanup, 23<sup>rd</sup> Biennial Conference  
on Carbon, The Pennsylvania State University, State College, PA, 1997  
Member of the International Advisory Board: Asian-Pacific Conference on Sustainable Energy and  
Environmental Technology, Singapore, 1996; Brisbane, Australia, 1998.  
Member of USEPA Mercury Control Technology Review Panel, 2003-2005  
Member of USDOE Carbon Capture and Transportation Working Group, 2003-2012  
Member of Illinois Governor's Science Advisory Committee on Mercury Emissions Rule, 2004-2006  
Team Work Award, ISGS-UIUC, 2008

### **Invited Plenary Lectures**

Asian-Pacific Conference on Sustainable Energy and Environmental Technology, Singapore, 1996  
Asian-Pacific Conference on Sustainable Energy and Environmental Technology, Gold Coast, Australia, 1998  
2<sup>nd</sup> China-U.S. Chemical Engineering Conference, Beijing, China, 2000  
Carbon Conference, Oviedo, Spain, 2003  
International Conference on Recent Advances in Nanotechnology, Tehran, Iran 2004  
Fourth Annual Conference on Carbon Sequestration, Alexandria, VA, 2005  
1<sup>st</sup> Indo-U.S. Workshop on Carbon Sequestration, Hyderabad, India, 2005  
NATO Advanced Research Workshop on Adsorption Processes for Environmental Protection and  
Security, Kiev, Ukraine, 2006  
Nanotechnology in Petroleum, Gas, and Petrochemical Industries, Tehran, Iran, 2007  
Center for Nanoscale Science and Technology Annual Workshop, UIUC, IL 2007  
Combustion Institute Technical Meeting, University of Alabama, Tuscaloosa, Alabama, 2008  
Mercury Workshop, 2011, National Taiwan University, Taipei, Taiwan  
Power Plant Conference, 2016, Tehran, Iran

### **Professional Activities**

American Institute of Chemical Engineers: Symposium Organizer and Co-Chair; Summer 1993, Spring  
1994, Fall 1995, Spring 1997, Spring 1998, Fall 1998, and Spring 1999 Meetings  
Program Chair: Fuel and Petrochemical Division, Fall 1996 Meeting  
American Chemical Society: Symposium Organizer and Co-Chair; Spring 1996, Fall 1998, Spring 2008  
Meetings  
American Carbon Society: Symposium Organizer and Co-Chair: 23<sup>rd</sup> Biennial Conference on Carbon,  
Summer 1997  
Asian-Pacific Conference on Sustainable Energy and Environmental Technology: Symposium Organizer  
and Co-Chair: Singapore, 1996; Brisbane, Australia, 1998.  
External Examiner of Research Proposals, Australian Research Council, 2002-2010  
External Examiner of PhD theses and proposals, University of Queensland, 2002-2010  
Member of the Working Group on the Expanding Agricultural Markets, Illinois Council for Food and  
Agricultural Research (C-FAR), 2000-2010  
Texas Higher Education Coordinating Board Proposal Panel, Austin, TX, 2003-2010  
Advisor/Co-Research Advisor of 20 graduate students in Civil and Environmental Engineering at the  
University of Illinois at Urbana-Champaign, 1985-2012  
Reviewer for ES&T, IEC, Carbon, Fuel, Energy & Fuel, Carbon, Fuel Proc. Tech., AIChE J, 1985-  
Founder, IPAC, LLC, Environmental Sorbent Engineering, LLC, Advanced Sorbent Engineering, LLC,  
2013-

### **Research Grants (PI,1985-2015)**

Illinois Clean Coal Institute; \$3M  
US Department of Energy; \$4M  
Electric Power Research Institute; \$20M  
Industry (Mississippi Lime Company, Ameren, Methane, Inc.); \$3M

## Consulting

EPRI (1995-present), USEPA (1996-2001), USDOE (2000-2010), HOK Activated Carbon (Cologne, Germany, 2006), Corning, Inc. (2009), US Lime Company (2010), United Nations Industrial Development Organization (2010-2014), Lhoist (Santiago, Chile, 2013), Shepherd Industries, Inc. (Kaohsiung, Taiwan, 2013-2015), Cabot-Norit (2014), Atlantic Minerals, Inc. (2016-2017)

## Patents

- Moran, D. L., M. Rostam-Abadi. 1993. Method for Preparing Hydrated Lime. US Patent  
Patent number: 5223239
- Moran, D.L., M. Rostam-Abadi. 1996. High surface area hydrated lime and method of removing SO<sub>2</sub> from a gas stream. US Patent number: 5492685
- Moran, D. L., M. Rostam-Abadi. 1999. High-Surface-Area Hydrated Lime and Methods for Removing SO<sub>2</sub> from a Gas Stream. Canadian Patent No. 2,087,173 (1999).
- Chang, R., M. Rostam-Abadi. 1999. Flake Shaped Sorbent US Patent 5,854,173 08.
- Chang, R, M. Rostam-Abadi, S, Chen. 2002. Apparatus and Methods for Removal of Vapor Phase Contaminants from a Gas Stream by In-Situ Activation of Carbonaceous Sorbents. US Patent 6,451,094
- Chang, R., M. Rostam-Abadi, and S. Sjostrom. 2003. Methods for Removal of Vapor Phase Contaminants from a Gas Stream by In-Situ Activation of Carbonaceous Sorbents. US Patent 6,558,454 B1
- Coleman, Dennis, Rodney Ruch, Scott Chen, and Massoud Rostam-Abadi. 2004. Development of Online Tracer Generation Processes for Pipeline Gas Storage. US Patent 6,793,699 B2
- Chen, S., Y. Lu, M. Rostam-Abadi. 2011. Integrated Vacuum Absorption Steam Cycle Gas Separation. U.S. Patent 8062408.
- Dastgheib, S., M. Rostam-Abadi, C. Schimp, K. Suslick. 2013. Carbon-Hydrocarbon Gas Composite Fuel. 61/739,447. US Patent 8062408 B2
- Chang, R, M. Rostam-Abadi, Y. Lu. 2015. Method and apparatus for on-site production of lime and sorbents for use in removal of gaseous pollutants, US Patent 8999278.
- Chang, R, M. Rostam-Abadi, Y. Lu. 2015. Chemically-Enhanced Sorbent Activation Process and Method for Using Same, US Patent 9302218
- Chang, R, M. Rostam-Abadi, K. J. Suslick. 2016. Method and Apparatus for Production of Self-Hydrating Sorbents for DSI Application. US Patent Application Filed
- Chang, R, M. Rostam-Abadi, Y. Lu. 2017. Chemically-Enhanced Sorbent Activation Process and Method for Using Same, US Patent 9555368 and US, Patent Application 20170136444

## Selected Publications in Refereed Journals

- Rostam-Abadi, M., and R. W. Mickelson. 1982. The Kinetics of Oxygen Chemisorption on Michigan Oil Shale Residue. *In Situ*, V. 9, No. 3.
- Rostam-Abadi, M., and R. W. Mickelson. 1982. The Reactivity of Retorted Michigan Antrim Oil Shale in O<sub>2</sub>/n<sub>2</sub> Atmosphere. *In Situ*, V. 9, No. 4.
- Stephenson, M. D., M. Rostam-Abadi, L. A. Johnson, and C. W. Kruse. 1985. Gas Phase Desulfurization of Char. *Coal Science and Technology*, vol 10, p. 353-372.
- Moran, D. L., M. Rostam-Abadi, H. Yoon, and J. A. Withum. 1991. Production and Coolside Pilot Plant Testing of High-surface-area Hydrated Lime. *Coal Science and Technology*, vol 18, p. 701-721.
- Rostam-Abadi, M., and J. A. DeBarr. 1990. Combustion Studies of Coal-derived Solid Fuels by Thermogravimetric Analysis: Iii. Correlation Between Burnout Temperature and Carbon Combustion Efficiency. *Thermochemica Acta*, 166, P. 351-356.
- Rostam-Abadi, M., J. A. DeBarr, and W.T. Chen. 1992. Combustion Studies of Coal Derived Solid Fuels: IV. Correlation of Ignition Temperatures from Thermogravimetry and Free-floating Experiments. *Thermochemica Acta*, 212, P. 19-26.
- Lizzio, A.A., and M. Rostam-Abadi. 1993. Production of Carbon Molecular Sieves from Illinois Coal. *Fuel Processing Technology* (Special Issue - High Value Products from Coal), 34, p. 97-122.
- Rostam-Abadi, M., J. Sun, A.A. Lizzio, M.J. Rood. 1995. Production of Adsorbent Carbon from Illinois Coal for Natural Gas Storage. *Coal Science and Technology*, 24(1), p.1101-1104.

- Kim B. R., C.W. Kruse, I. Demir, S. L. Carlson, and M. Rostam-Abadi. 1996. Evaluating Paint-Sludge Chars for the Adsorption of Selected Paint Solvents. *Journal of Environmental Engineering*, ASCE, 122(6), p. 532-539.
- Rostam-Abadi, M., and G. Q. Lu. 1996. Carbon-Based Materials for Gas Separation, Purification and Clean Up. *Gas Separation and Purification*, 10(2), p. 89-90.
- Brady, T.A., M. Rostam-Abadi, and M.J. Rood. 1996. Applications for Activated Carbons from Waste Tires: Natural Gas Storage and Air Pollution Control. *Gas Separation and Purification*, 10(2), p. 97-102.
- Sun, J., M. J. Rood, M. Rostam-Abadi, and A. A. Lizzio. 1996. Production of Adsorbent Carbons from Illinois Coal for Natural Gas Storage. *Gas Separation and Purification*, 10(2), p. 91-96.
- Sun, J., M. T. A. Brady, M. J. Rood, M. Rostam-Abadi, and A. A. Lizzio. 1997. Adsorbed Natural Gas Storage with Activated Carbon Made from Illinois Coal Scrap Tires. *Energy and Fuels*, 11(2), p. 316-322.
- Sun, J., M. Rostam-Abadi, S. Chen, and M. Rood. 1998. Correlating N<sub>2</sub> and CH<sub>4</sub> Adsorption on Microporous Carbon Using A New Analytical Model. *Energy and Fuels*, 12 (6), p. 1071-1080.
- Rostam-Abadi, M., H-C Hsi, S. Chen, M.J. Rood, R. Chang, T. R. Carey, C. F. Richardson, B. Rosenhoover. 1998. Development of Carbon-Based Adsorbent for Removal of Mercury Emissions from Coal Combustion Flue Gas. *Adsorption and Its Application in Industry and Environmental Protection*, A. Dabrowski, Ed; Elsevier Science Pub. Co. Inc., Amsterdam
- Lehmann, C. M., M. Rostam-Abadi, M. J. Rood, and J. Sun. 1998. Reprocessing and Reuse of Waste Tire Rubber to Solve Air Quality Related Problems. *Energy and Fuels*, 12 (6), p. 1095-1099.
- Hsi, H-C, S. Chen, M. Rostam-Abadi, M.J. Rood, C. F. Richardson, T. R. Carey, and R. Chang. 1998. Preparation and Evaluation of Coal-Derived Activated Carbons for Removal of Mercury Vapor from Coal Combustion Flue Gases. *Energy and Fuels*, 12 (6), p. 1061-1070.
- Carey, T.R., C.F. Richardson, R. Chang, F. B. Meserole, M. Rostam-Abadi, and S. Chen, 2000. Assessing Sorbent Injection Mercury Control Effectiveness in Flue Gas Streams, *Environmental Progress*, 19 (3), p. 167-174.
- Lordgooei, M., M. J. Rood, M. Rostam-Abadi, 2000. Modeling Effective Diffusivity of Volatile Organic Compounds in Activated Carbon Fiber, *Environmental Science and Technology*, 34, 613-619.
- Lordgooei, M., M. J. Rood, and M. Rostam-Abadi, 2001. Modeling Effective Diffusivity of Volatile Organic Compounds in Activated Carbon Fiber. *Environmental Science and Technology*, Vol., 35, pp. 613-619.
- Lordgooei, M., Rood, M. J., and Rostam-Abadi, M. 2001. New General Pore Size Distribution Model by Classical Thermodynamics Application: Activated Carbon, *J. Environmental Engineering*, April, Vol. 127, No. 4, pp. 281-287.
- Hsi, H-C, M. Rostam-Abadi, M.J. Rood, S. Chen, R. Chang. 2001. Effect of Sulfur Impregnation Temperature on the Properties and Mercury Adsorption Capacities of Activated Carbon Fibers, *Environmental Science and Technology*, 35 (13), p. 2785-2791.
- Sun, J., T.D. Jarvi, L.F. Conopask, S. Satyapal, M.J. Rood, and M. Rostam-Abadi, 2001. Direct Measurements of Volumetric Gas Storage Capacity and some New Insight into Adsorbed Natural Gas Storage. *Energy and Fuels*, 15(5), p. 1241-1246.
- Rafsanjani, H., E. Jamshidi, and M. Rostam-Abadi, 2002. A New Mathematical Solution for Predicting Char Activation Reactions. *Carbon*, 40(8), p. 1167-1171
- Hsi, H.-C., Rood, M.J., Rostam-Abadi, M., Chen, S., Chang, R. 2002. Mercury Adsorption Properties of Sulfur Impregnated Adsorbents, *J. of Environmental Engineering*, 128, 11, 1080-1089.
- Mota, J.B.P., Esteves, A.A.C., Rostam-Abadi, M. 2004. Dynamic Modeling of an Adsorption Storage Tank Using a Hybrid Approach Combining Computational Fluid Dynamics and Process Simulation. *Computer and Chemical Engineering*, 28, p.2421-2431.
- Agnihotri, S., Rostam-Abadi, M., Rood, M. 2004. Temporal Changes in Nitrogen Adsorption Properties of Single-Wall Carbon Nanotubes. *Carbon*, 42 (12-13), p. 2699-2710.
- Agnihorti, S., P. Mota, M. Rostam-Abadi, m. Rood, 2005. Structural Characterization of Single-Walled Carbon Nanotube Bundles by Experiment and Molecular Simulation, *Langmuir*, vol. 21. no. 3, p.896-904.
- Agnihorti, S., M. Rostam-Abadi, M. Rood, 2005. Adsorption Equilibrium of Organic Vapors on Single-Walled Carbon Nanotubes, *Carbon*, vol. 43, no.11, p. 2379-2388.

- Agnihorti, S., P. Mota, Rostam-Abadi, O.M. Rood, 2006. Theoretical and Experimental Investigation of Morphology and Temperature Effects on Adsorption of Organic Vapors in Single-Walled Carbon Nanotubes, *J. Phys. Chem. B*, vol 110, no. 15, p. 7640-7647.
- Agnihotri, A., J. P.B. Mota, M. Rostam-Abadi, M. J. Rood, 2006. Adsorption Site Analysis of Impurity Embedded Single-Walled Carbon Nanotube Bundles. *Carbon*, vol. 44, p. 2366-2383.
- Fabien Châtel-Pélage, Rajani Varagani, Pavol Pranda, Nicolas Perrin, Hamid Farzan, Stanley J. Vecci, Yongqi Lu, Scott Chen, Massoud Rostam-Abadi, Arun C. Bose, 2006. Applications of Oxygen for NO<sub>x</sub> Control and CO<sub>2</sub> Capture in Coal-Fired Power Plants, *Thermal Science*, volume 10 (14).
- Lu, Y. M. Rostam-Abadi, C.W. Richardson, Jennifer Paradis, R. Chang. 2007. Characterization of Fly Ashes from Full Scale Coal-Fired Power Plants and Their Relationship to Mercury Adsorption, *Energy and Fuels*, 21(4), 2112-2120.
- Fortunato, M., M. Rostam-Abadi, K. Suslick. 2010. Nanostructured Carbons Prepared by Ultrasonic Spray Pyrolysis. *Chemistry of Materials*, 22 (5), p 1610–1612.
- Atkinson, J.D., M. E. Fortunato, S.A. Dastgheib, M. Rostam-Abadi, M. J. Rood, K. S. Suslick. 2011. Synthesis and characterization of iron-impregnated porous carbon spheres prepared by ultrasonic spray pyrolysis. *Carbon*, 49 (2): 587.
- Zhang, Shihan; Zhang, Zhaohui; Lu, Yongqi; Rostam-Abadi, Massoud; Jones, Andrew. 2011. Activity and stability of immobilized carbonic anhydrase for promoting CO<sub>2</sub> absorption into a carbonate solution for post-combustion CO<sub>2</sub> capture. *Bioresource Technology* 102 (22), p.10194-101201.
- Zhang, Luzheng; Lu, Yongqi; Rostam-Abadi, Massoud. 2012. Sintering of calcium oxide (CaO) during CO<sub>2</sub> chemisorption: a reactive molecular dynamics study. *Physical Chemistry Chemical Physics* vol. 14 (48), p. 16633-16643
- Hsing-Cheng Hsi, M. Rood, M. Rostam-Abadi. 2013. Effects of Sulfur, Nitric Acid, and Thermal Treatments on the Properties and Mercury Adsorption of Activated Carbons from Bituminous Coals, *Aerosol and Air Quality Research*, 13: 730–738.
- Lu, Hong; Lu, Yongqi; Rostam-Abadi, Massoud. 2013. CO<sub>2</sub> sorbents for a sorption-enhanced water-gas shift process in IGCC plants: A thermodynamic analysis and process simulation study. *International Journal of Hydrogen Energy*: 38 (16) p. 6663-6672.
- Sayyah, M., B. R. Ito, M. Rostam-Abadi, Y. Lu, K. S. Suslick. 2013. CaO-based sorbents for CO<sub>2</sub> capture prepared by ultrasonic spray pyrolysis, *RSC Adv.*, 3, 19872-19875.
- Dastgheib, S., J. Ren, M. Rostam-Abadi, R Chang. 2014. Preparation of functionalized and metal-impregnated activated carbon by a single-step activation method. *Applied Surface Science*, 13:92-101.
- Steen, W., C. Richardson, Y. Lu, H. Lu, M. Rostam-Abadi. 2014. Sorbent enhanced water-gas shift process for carbon capture in IGCC. *Energy Procedia* 63:1686 – 1702.

#### **Selected Articles in Proceedings of Conferences**

- Rostam-Abadi, M. S., Agnihorti, M.J. Rood (2002). Energy and Environmental Applications of Carbon Nanotubes. *Annual American Chemical Society Meeting*, Boston, MA, August.
- Agnihotri, S., M. Rostam-Abadi, M.J. Rood (2002). Porosity, Reactivity, and Thermal Stability of Carbon Nanotubes. *Annual American Institute of Chemical Engineers*, Indianapolis, IN, November 10-15.
- Rostam-Abadi M. R. D. Harvey (2003). Co-Firing and Co-Gasification of Biosolids with Coal (2002). *The 28<sup>th</sup> International Technical Conference on Coal Utilization & Fuel Systems, Clearwater, FL, March 10-13.*
- Rostam-Abadi, M. S., Agnihorti, M.J. Rood (2002). Energy and Environmental Applications of Carbon Nanotubes. *Annual American Chemical Society Meeting*, Boston, MA, August.
- Agnihotri, S., M. Rostam-Abadi, M.J. Rood (2002). Porosity, Reactivity, and Thermal Stability of Carbon Nanotubes. *Annual American Institute of Chemical Engineers*, Indianapolis, IN, November.
- Marin, O, F. Châtel-Pélage, N. Perrin, S. Chen, Y. Lu, M. Rostam-Abadi, R. Carty (2003). Economic Analysis of Oxygen-Fired Coal Boilers. *The 28<sup>th</sup> International Technical Conference on Coal Utilization & Fuel Systems, Clearwater, FL, March 10-13.*
- Rostam-Abadi M. R. D. Harvey (2003). Co-Firing and Co-Gasification of Biosolids with Coal (2002). *The 28<sup>th</sup> International Technical Conference on Coal Utilization & Fuel Systems, Clearwater, FL, March 10-13.*

- Marin, O, F. Châtel-Pélage, N. Perrin, S. Chen, Y. Lu, M. Rostam-Abadi, R. Carty (2003). Economic Analysis of Oxygen-Fired Coal Boilers. **The 28<sup>th</sup> International Technical Conference on Coal Utilization & Fuel Systems**, Clearwater, FL, March 10-13.
- Mota, J. P., Rodrigo, A., M. Rostam-Abadi (2003). Dynamic Modeling of an Adsorption Storage Tank, **13<sup>th</sup> European Symposium on Computer Aided Process Engineering**. Lappeenranta, Finland, June 1-4.
- Agnihorti, S., M. Rostam-Abadi, M. J. Rood, R. Clarkson (2003). Adsorption of Water Vapor and Organic Vapors on Single Walled Carbon Nanotubes, **2003 Air Waste Management Association Conference**, San Diego, CA, June 23-26.
- Rostam-Abadi, M., H.C. Hsing, M. J. Rood, S. Chen, R. Chang (2003). Effects of Pore Structure and Sulfur Functional Groups on Adsorption of Mercury onto Carbon-Based Adsorbents, **Invited paper at Carbon 2003**, Oviedo, Spain, July 6-11.
- Agnihorti, S., M. Rostam-Abadi, M. J. Rood, R. Clarkson (2003). Adsorption of Water vapor and Organic Vapors on Single Walled Carbon Nanotubes: Comparison with Other Carbon-Based Adsorbents, **Carbon 2003**, Oviedo, Spain, July 6-11.
- Mota, J. P. S. Agnihorti, M. Rostam-Abadi, M.J. Rood (2003). Molecular Simulation of Water Vapor Adsorption on Single Walled Carbon Nanotube, **Carbon 2003**, Oviedo, Spain, July 6-11.
- Agnihorti, S., M. Rostam-Abadi, M. J. Rood, R. Clarkson (2003). Adsorption Isotherms of Water Vapor and Organic Vapors on Single Walled Carbon Nanotubes, **American Institute of Chemical Engineers Annual Meeting**, San Francisco, CA, November 16-21.
- Sangras, Ravi Sangras, Fabienne Châtel-Pélage, Pavol Pranda, Hamid Farzan, Stanley J. Vecci, Yongqi Lu, Scott Chen, Massoud Rostam-Abadi, Arun C. Bose, 2004. Oxycombustion Process in Pulverized Coal-Fired Boilers: A Promising Technology for CO<sub>2</sub> capture, **29<sup>th</sup> International Conference on Coal Utilization and Fuel Systems**, Clearwater, FL, April 18-22.
- Sangras, Ravi Sangras, Fabienne Châtel-Pélage, Pavol Pranda, Hamid Farzan, Stanley J. Vecci, Yongqi Lu, Scott Chen, Massoud Rostam-Abadi, Arun C. Bose, 2004. Techno-economic Study of Oxycombustion Process in Pulverized Coal-Fired Boilers, **Third Annual Conference on Carbon Sequestration**, Washington, DC, May 2-6.
- Mota, J. P., Rodrigo, A., S. Agnihorti, M. Rostam-Abadi, 2004. Molecular Simulation of Vapor Adsorption in Single Carbon Nanotube Bundles, **8<sup>th</sup> International Conference on Fundamental of Adsorption**, Sedona, AZ, May 23-28.
- Rostam-Abadi, M., S. Agnihorti, and M. J. Rood, 2004. Variability In Characterization Results Of Single-Walled Carbon Nanotubes, **International Carbon Conference**, Providence, RI, July 11-16.
- Châtel-Pélage, Fabienne, Sangras, Ravi Sangras, , Pavol Pranda, Hamid Farzan, Stanley J. Vecci, Yongqi Lu, Scott Chen, Massoud Rostam-Abadi, Arun C. Bose, 2004. NO<sub>x</sub> control or CO<sub>2</sub> capture in coal-fired power plants: Why using oxygen?, **AFRC-JFRC 2004 Joint International Combustion Symposium, Environmental Control of Combustion Processes -Innovative Technology for the 21<sup>st</sup> Century**, Maui, Hawaii, October 10-13.
- Agnihorti, S. M. Rostam-Abadi, M. Rood, 2004. Characterization of Single-Walled Carbon Nanotubes For Environmental Implications, **American Institute of Chemical Engineers Annual Meeting**, Austin, TX, November 7-12.
- Rostam-Abadi, R. D. Harvey, Y. Lu, B.G. Miller, 2005. Combustion of Sewage Sludge and Coal Fines in a Pilot-Scale Circulating Fluidized-Bed Combustor, **ElectricPower2005**, Chicago, IL, April 4-7.
- Sangras, Ravi Sangras, Fabienne Châtel-Pélage, Pavol Pranda, Hamid Farzan, Stanley J. Vecci, Yongqi Lu, Scott Chen, Massoud Rostam-Abadi, Arun C. Bose, 2005. Performance Simulation and Cost Assessment of Oxy-Combustion Process for CO<sub>2</sub> Capture from Coal-Fired Power Plants, **Fourth Annual Conference on Carbon Sequestration**, Alexandria, VA, May 2-5 2005.
- Rostam-Abadi, M., S. Chen, Y. Lu, 2005. Assessment of Carbon Capture Technologies for Power Plants, **Fourth Annual Conference on Carbon Sequestration**, Alexandria, VA, May 2-5 2005.
- Châtel-Pélage, Fabienne, Sangras, Ravi Sangras, , Pavol Pranda, Hamid Farzan, Stanley J. Vecci, Yongqi Lu, Scott Chen, Massoud Rostam-Abadi, Arun C. Bose, 2005. Applications of Oxygen for NO<sub>x</sub> control and CO<sub>2</sub> capture in coal-fired power plants, **Second International Conference on Clean Coal Technologies for our Future**, Sardinia, Italy, May 10-12.

- Agnihorti, S., P. Mota, M. Rostam-Abadi, M. Rood, 2005. Computer-aided characterization of single-walled carbon nanotubes and associated impurities for adsorption applications. **Carbon for Energy Storage and Environment Protection**, Orléans, France, October 2-6.
- Agnihorti, S., M. Rostam-Abadi, P. Mota, M. Rood, 2005. Adsorption in Single-Walled Carbon Nanotubes by Experiments and Molecular Simulation I: Determining Fraction of Open-ended Nanotubes in Samples. **Annual American Institute of Chemical Engineers Meeting**, Cincinnati, OH, November 6-11.
- Agnihorti, S., M. Rostam-Abadi, P. Mota, M. Rood, 2005. Adsorption in Single-Walled Carbon Nanotubes by Experiments and Molecular Simulation II: Effect of Morphology and Temperature on Organic Adsorption. **Annual American Institute of Chemical Engineers Meeting**, Cincinnati, OH, November 6-11.
- Rostam-Abadi, R. D. Harvey, Y. Lu, B.G. Miller, 2005. Combustion of Sewage Sludge and Coal Fines in a Pilot-Scale Circulating Fluidized-Bed Combustor, **ElectricPower2005**, Chicago, IL, April 4-7.
- Châtel-Pélage, Fabienne, Sangras, Ravi Sangras, Pavol Pranda, Hamid Farzan, Stanley J. Vecci, Yongqi Lu, Scott Chen, Massoud Rostam-Abadi, Arun C. Bose, 2005. Applications of Oxygen for NOx control and CO2 capture in coal-fired power plants, **Second International Conference on Clean Coal Technologies for our Future**, Sardinia, Italy, May 10-12.
- Rostam-Abadi, M., S. Chen, Y. Lu, 2005. Assessment of Carbon Capture Technologies for Power Plants, **Fourth Annual Conference on Carbon Sequestration**, Alexandria, VA, May 2-5 2005.
- Rostam-Abadi, M., S. Chen, Y. Lu, 2005. Assessment of Carbon Capture and Sequestration Options. **1st Indo-U.S. Workshop on Carbon Sequestration**, Hyderabad, India, June 2-3.
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