Suresh Raja
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EDUCATION:

Louisiana State University: Ph.D. 2005
Louisiana State University: M.S. Chemical Engineering 2003
Louisiana State University: M.S. Nuclear Science and Engineering 2001
University of Madras: B.Tech. Chemical Engineering 1998

Honors:

- Invited participant at ACCESS VIII Colloquium 2005, organized by Brookhaven National Laboratory, Sponsored by U.S. Department of Energy.
- Graduate School Award at American University, Washington, D.C.
- B.Tech. degree in Chemical Engineering with First Class.

Classes Taught (Current and Past):

- Industrial Air Pollution Control
- Measurement of Air Pollution
- Experiments in Biology
- Atmospheric Chemistry

EXPERIENCE:

August 2008 - to date: Assistant Research Professor, Department of Chemical Engineering Clarkson University, Potsdam, NY

July 2007 – July 2008: Research Associate, Department of Chemical and Biomolecular Engineering and Center for Air Resources Engineering and Science, Clarkson University, Potsdam, NY

August 2005 – June 2007: Post-Doctoral Fellow, Department of Atmospheric Science, Colorado State University, Fort Collins, CO

June 2001 – July 2005: Graduate Research Assistant, Cain Department of Chemical Engineering, Louisiana State University, Baton Rouge, LA

January 1999 – May 2001: Graduate Research Assistant, Department of Physics/Nuclear Science Center, Louisiana State University, Baton Rouge, LA

August 1998 – December 1998: Graduate Teaching Assistant, Department of Biology, American University, Washington, D.C.

January 1998 – April 1998: Research Intern, Health and Safety Physics Group, Indira Gandhi Center for Atomic Research, Kalpakkam, India

Analytical Instruments and Computer Skills:

Analytical Instruments: GC/MS, GC-FID, LC-UV&DAD, ICP-MS, TGA, Spectroscopy

Operating Systems: UNIX and Windows
Programming Languages: FORTRAN, C, dBase III+, and BASIC
Softwares: ARCGIS, SAS

MEMBERSHIPS IN PROFESSIONAL SOCIETIES:

• American Chemical Society
• American Association for Aerosol Research

Journal Publication List of Suresh Raja

K. B. Beem, Raja, S., Schwandner, F., Taylor, C., Lee, T., Sullivan, A.P., Carrico, C., McMeeking, G.R., Day, D., Levin, E., Hand, J., Kreidenweis, S.M., Schichtel, B., Malm, W.C., and Collett, Jr., J.L., "Deposition of reactive nitrogen during the Rocky Mountain Airborne Nitrogen and Sulfur (RoMANS) study", under review (2009).

Raja, S., Xu, Y., Ferro, A.R., Jaques, P.A., Hopke, P.K., "Effect of Resuspended Aeroallergens on Lung Inflammation in Asthmatic Children", Environment International (2009), in press.

Raja, S., Farhana, B.K., Husain, L. and Hopke, P.K.., "Source Apportionment of Atmospheric Aerosols in Lahore, Pakistan", Water, Soil and Air Pollution (2009), in press.

Xu, Y., Raja, S., Ferro, A.R., Jaques, P.A., Hopke, P.K., Gressani, C., and Wetzel, L.E., "Effectiveness of HVAC/HEPA unit on IAQ and asthmatic children's health", Building and Environment (2009), in press.

Raja, S., Ravikrishna R., Kommalapatti, R.R., Shen, X., Collett, J.L., Jr., Valsaraj, K.T., (2009) "Organic Composition of Fogwater in the Texas-Louisiana Gulf Coast Corridor", Atmospheric Environment 43: 4214–4222, doi:10.1016/j.atmosenv.2009.05.029.

William C. Malm, Gavin R. McMeeking, Sonia M. Kreidenweis, Ezra Levin, Christian M. Carrico, Derek E. Day, Jeffrey L. Collett, Jr., Taehyoung Lee, Amy P. Sullivan, and Suresh Raja, "Using High Time Resolution Aerosol and Number Size Distribution Measurements to Estimate Atmospheric Extinction" Journal of Air & Waste Management Association (in press) , 2009.

Raja, S., Raghunathan, R., Yu, X.-Y., Lee, T., Chen, J., Kommalapati, R. R., Murugesan, K., Shen, X., Qingzhong, Y., Valsaraj, K. T., Collett Jr., J. L. (2008) Fog chemistry in the Texas - Louisiana Gulf Coast corridor. Atmospheric Environment., 42: 2048-2061.

Carrico, C.M., Kreidenweis, S.M., Collett, J.L., Lee, T., Sullivan, A.P., McMeeking, G.R., Raja, S., Schwandner, F.M., Beem, K.L., Taylor1, C.A. D.E. Day, J. Hand, M.A. Rodriguez, M.G. Barna, K.A. Gebhart, B.A. Schichtel, W.C. Malm, "The Rocky Mountain Atmospheric Nitrogen and Sulfur (RoMANS) Study of 2006" Improve Newsletter, Vol. 16(2), 2007, 4-6.

Suresh Raja and Kalliat T. Valsaraj, “On the Reactive Uptake of Gaseous PAH Molecules by Micron-Sized Atmospheric Water Droplets”, Atmospheric Research, Volume 81, Issue 4, October 2006, Pages 277-292.

Suresh Raja and Kalliat T. Valsaraj, “Heterogeneous Oxidation of Naphthalene Adsorbed on the Surface of Micron-Size Water Droplets by Ozone in Air”, Journal of Air and Waste Management Association (2005), Vol. 55, pp. 1345-1355.

S Raja, R Ravikrishna, R R Kommalapati and K T Valsaraj, “Environmental Monitoring of Fogwater Chemistry in the Gulf Coast Urban Industrial Corridor: Baton Rouge (Louisiana)”, Environmental Monitoring and Assessment (2005), Vol. 110, pp. 99-120.

Raja, Suresh; Valsaraj, Kalliat T. Uptake of Aromatic Hydrocarbon Vapors (Benzene and Phenanthrene) at the Air-Water Interface of Micron-Size Water Droplets. Journal of the Air and Waste Management Association, (2004), Vol. 54(12), 1550-1559.

Raja, Suresh; Valsaraj, Kalliat T. Adsorption and Transport of Gas-Phase Naphthalene on Micron-Size Fog Droplets in Air. Environmental Science and Technology (2004), 38(3), 763-768.

Raja, S.; Yaccone, F. S.; Ravikrishna, R.; Valsaraj, K. T., “Thermodynamic Parameters for the Adsorption of Aromatic Hydrocarbon Vapors at the Gas-Water Interface”, J. Chem. Eng. Data, 2002 ; 47(5), pp. 1213-1219.

E. Sajo, S. Raja, "A three-dimensional indoor aerosol transport model ", Health Physics, v. 82, n. 6, pp. S169 - S170, 2002.

PUBLISHED CONTRIBUTIONS TO ACADEMIC CONFERENCES

Raja, S., Farhana, B.K., Husain, L. and Hopke, P.K.., “Source Apportionment of Atmospheric Aerosols in Lahore, Pakistan”, Submitted to AAAR 27th Annual Conference, 2008.

Raja, S., Ferro, A., Jaques, P. and Hopke, P.K., “Measurement of endotoxin and aeroallergens in PM10 and settled dust in the homes and school rooms of asthmatic children”, Submitted to AAAR 27th Annual Conference, 2008.

Raja, S., Ferro, A., Jaques, P. and Hopke, P.K., “*Distribution of Aeroallergens Measured in Homes*”, Submitted to AAAR 27th Annual Conference, 2008.

Xu, Y., Raja, S., Ferro, A.R., Jaques, P.A., Hopke, P.K., Gressani, C., and Wetzel, L.E., Effectiveness of Air Cleaner on reducing indicators of airway inflammation in asthmatic children, American Association for Aerosol Research, Annual Conference Abstracts, 2008.

Ferro, A.R., Xu, Y., Raja, S., Jaques, P.A., Hopke, P.K., Gressani, C., and Wetzel, L.E.,*Air cleaner effects on indoor air quality and asthmatic children's health,* American Association for Aerosol Research, Annual Conference Abstracts, 2008.

Schwandner, F. M., Sewell, H. J., Collett, J. L., Molenar, J. V., Archuleta, C. M., Tigges, M., Bote, A. A. (1), Raja, S. (2008). Ammonia Monitoring in the Upper Green River Basin, Wyoming. AAAR 27th Annual Conference, October 20 - 24, 2008, Orlando FL.

Jenny L. Hand, Jeffrey L. Collett, Courtney Taylor , Suresh Raja, Christian Carrico, Taehyoung Lee, Florian Schwander, Derek Day, Amy Sullivan, Gavin McMeeking, Katie Beem, Sonia Kreidenweis "Spatial Patterns in Wet Deposition during the 2006 Rocky Mountain Atmospheric Nitrogen and Sulfur Study (RoMANS)", A&WMA Specialty Conference "Aerosol and Atmospheric Optics: Visual Air Quality and Radiation", Moab UT April 28-May 2 2008.

Suresh Raja, Jeffrey Collett, Jr., Taehyoung Lee, Xiao-Ying Yu, Sonia Kreidenweis, Jenny Hand, Derek Day, and William Malm, "Ionic Composition of Aerosols in Rocky Mountain National Park: A Pilot Study", International Aerosol Conference (2006), St. Paul, Minnesota USA.

Suresh Raja and Kalliat T. Valsaraj, Transport and Kinetics of Armotic Hydrocarbons on Micron-Sized Droplets", Gordon Research Conference, September 4-9, 2005, Big Sky, Montana.

S. Raja and K.T. Valsaraj, "Heterogeneous oxidation of naphthalene vapors on the air-water interface of fog droplets," Annual AWMA conference, Minneapolis, Minnesota, June (2005).

Raja, S.; Valsaraj, K. T.; Andrews, T.; Kommalapati, R. R.; Ravikrishna, R., "Adsorption of aromatic hydrocarbon vapors at the air-water interface and atmospheric wet deposition process", Preprints of Extended Abstracts presented at the ACS National Meeting, American Chemical Society, Division of Environmental Chemistry (2003), 43(1), 892-898.

Raja, S.; Yaccone, F.; Ravikrishna, R.; Valsaraj, K. T., "Adsorption of aromatic hydrocarbon vapors at the gas-solid and gas-water interface", Proceedings of the Air & Waste Management Association' s Annual Conference & Exhibition, 95th, Baltimore, MD, United States, June 23-27, 2002 (2002), 231-240.

Suresh Raja, Frank Yacone, Ravikrishna Raghunathanan and K. T. Valsaraj, "Partitioning of Polycyclic Aromatic Compounds at the Air-Water Interface", 2002 Spring National Meeting of AIChE, New Orleans, Louisiana, United States, 2002.

S Raja, F Yaccone, R Ravikrishna and K T Valsaraj. "Partitioning of polycyclic aromatic

hydrocarbons at the air-water interface", Paper # 144h presented to the National AIChE meeting in New Orleans, March 11, 2002.

S Raja, R Ravikrishna, R R Kommalapati and K T Valsaraj, "Air-water interfacial adsorption of PAHs" Paper for the AWMA National Meeting, Baltimore MD, June 26, 2002.

S Raja, T Andrews, R Ravikrishna, R R Kommalapati and K T Valsaraj, "Air-water interfacial adsorption of PAHs and its effects on wet deposition from the atmosphere " Paper for the AWMA National Meeting, San Diego, CA, June 23-27, 2003.

S Raja, T Andrews, R Ravikrishna, R R Kommalapati and K T Valsaraj, "Air-water interfacial adsorption of PAHs and its effects on wet deposition from the atmosphere " Paper for the ACS National Meeting, New Orleans, LA, March 24-28, 2003.

S Raja, T Andrews, R R Kommalapati, R Ravikrishna and K T Valsaraj, "Adsorption of PAHs on the air-water interface and its implications in atmospheric wet deposition processes" Paper presented at the 2003 Annual AWMA meeting, San Diego, CA, June 23-26 (2003).

S Raja, T Andrews, R R Kommalapati, R Ravikrishna and K T Valsaraj, "Adsorption of PAHs on the air-water interface and its implications in atmospheric wet deposition processes" Paper presented at the 2003 Annual AIChE meeting, San Francisco, CA, November 23-26 (2003).

S Raja and K T Valsaraj, "Heterogeneous oxidation of naphthalene vapors on the air-water interface of fog droplets" Annual AWMA conference, Minneapolis, MN, June 20-25 (2005).

S Raja and K T Valsaraj, "Heterogeneous and free radical chemistry of polycyclic aromatic hydrocarbons on fogwater droplets in the atmosphere", Paper presented at the PACIFICHEM 2005 meeting in Honolulu, Hawaii, December 14 – 21, 2005.

S Raja, K T Valsaraj, "On the heterogeneous oxidation of semi-volatile organic vapors (SVOCs) on water droplets in the atmosphere. Paper for the 16th annual meeting of SETAC Europe, The Hague, The Netherlands, 7-11, May, 2006.

J L Collett, A Bator, H Chang, B B Demoz, P Herckes, K Hoag, T Lee, K F Moore, S Raja, X Rao, J Reilly, L Rinehart, D E Sherman, D Straub, S Youngster, X-Y Yu, K T Valsaraj, R Ravikrishna, "The chemical composition of fogs and clouds in the United States", AGU annual meeting, San Francisco, CA, December, 2006 (Invited paper).

J L Collett, L R-Mazzoleni, P Herckes, X Shen, T Lee, A P Sullivan, S Raja, R R Kommalapati, K T Valsaraj, "Carbonaceous aerosol processing by clouds and fogs", Paper for the symposium "Atmospheric Aerosol Processes", Division of environmental Chemistry, national ACS meeting in Boston, MA, August 19-23, 2007.

R R Kommalapati, S Raja, R Ravikrishna, K Murugesan, J L Collett, K Valsaraj, "Fogwater chemistry and air quality in the Texas-Louisiana Gulf coast corridor", Paper for the special session on Atmospheric Aerosol Processes at the AGU Joint Assembly meeting in Acapulco, Mexico, May 22-25, 2007.

S Raja, R Ravikrishna, X-Y Lu, T Lee, J Chen, R R Kommalapati, K Murugesan, Y Qingzhong, X Shen, J L Collett, K T Valsaraj, "Fogwater chemistry in the Texas-Louisiana Gulf coast corridor of the United States", Paper for the 4th International Conference on Fog, Fog collection and Dew, City of La Serena, Chile, July 22-27, 2007.

JL Collett, A Bator, H Chang, BB Demoz, P Herckes, K Hoag, T Lee, KF Moore, S Raja, X Rao, J Reilly, L Rhinehart, DE Sherman, D Straub, G Xu, S Youngster, X-Y Yu, "The chemical composition of fogs and clouds in the United States", Paper for the 4th International Conference on Fog, Fog Collection and Dew, La Serena, Chile, July 21-27 (2007).

JL Collett, L Mazzoleni, X Shen, P Herckes, T Lee, S Raja, K T Valsaraj, "Carbonaceous aerosol processing by clouds and fogs", International Conference on Clouds and Precipitation, July, 2008 (Invited paper).

K T Valsaraj, S Raja, R Ravikrishna, R R Kommalapati, T Lee, X Shen, J L Collett, "Organic composition of fogwater in the Texas-Louisiana Gulf Coast Corridor", Paper for the symposium on Atmospheric Chemistry and Climate Change, ACS Southwest Regional Meeting, Little Rock, AR, October 1, 2008.

Sajo, E., and Raja, S., "Measurements and simulation of Aerosol transport in confined spaces", ANS and ENS conference on Nuclear Science and Technology, Washington, DC, November 2000, Trans. Am. Nuc. Soc. VOL. 83, pp. 73-75.

Raja, S., E. Sajo, "Aerosol Dispersion Measurements in Enclosed Atmospheres", Paper Presented at the 2000 midyear conference of the Health Physics Society, Virginia Beach, VA.

Research Grants:

(1)Dr. Philip Hopke NJDP $25,000.00
Dr. Suresh Raja
"Application of Local Wind and Trajectory Ensemble Analysis to Locate VOC Source"

(2)Dr. Philip Hopke WYLE-F $45,000.00
Dr. Suresh Raja
TRB Award with Wyle Laboratories
"Guidance for Quantifying the Contribution of Airport Emissions to Local Air Quality"

(3)Dr. Philip Hopke UMICH-F $50,866.00
Dr. Suresh Raja
"Role of Diesel and other Vehicular Exhaust in Exacerbation of Childhood Asthma"

(4)Dr. Philip Hopke NYIEQ-F $61,197.00
Dr. Andrea Ferro
Dr. Suresh Raja
"Technology Application and Demonstration Program"

(5)Dr. Philip Hopke NYSERDA $400,000.00
Dr. Suresh Raja
"Atmospheric Species - Improved Monitoring, Characterization and Understanding of Processes"

(6) Dr. Thomas Holsen NYSERDA $164,506
Dr. Philip Hopke
Dr. Suresh Raja
"Study of the Conditions for Effective Use of ESPS in Advanced Wood Burning Systems"

(7) Dr. Philip Hopke ACT LLC $15,044
Dr. Suresh Raja
"Demonstration of State-of-the-Art, European-Type, Wood Chip and Pellet, Gasification Boiler at Cayuga Nature Center"

(8) Dr. Philip Hopke TAD $100, 022
Dr. Andrea Ferro
Dr. Suresh Raja
"Demonstration and Commercialization of the Air Innovations, INC. HEPAiRx Integrated Energy Recovery Ventilation and Air Purification System"

GRADUATE AND UNDERGRADUATE RESEARCH & EDUCATION

Graduate and undergraduate students co-advised

Name	Status	Dates	Current Position
James Laing, Clarkson University	Graduate Student	2008-Present	Graduate Student, Clarkson University
Uma Ramesh Lagudu, Clarkson University	Graduate Student	2009-present	Graduate Student, Clarkson University
Ying Xu, Clarkson University	Graduate student	2007-2008	Ph.D. Student Clarkson University
Xinhua Shen, Colorado State University	Graduate student	2006-2007	Ph.D. Student CSU, Fort Collins, CO
Courtney Taylor, Colorado State University	Graduate student	2005-2007	ENSR, Fort Collins, CO
Katie Troxler, Louisiana State University	Under-Graduate student	2003-2005	Albemarle Corporation, Baton Rouge, LA
Shawn Luke, Louisiana State University	Under-Graduate Student	2003-2005	Environmental Consulting Company, Baton Rouge, LA

Reviewer

Environmental Science and Technology
Atmospheric Environment
Canadian Journal of Environmental Engineering
American Chemical Society: Environmental Chemistry Division Books