

RESUME

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<http://www.clarkson.edu/projects/fluidflow/ga/ResumeIndex.htm>

<http://www.clarkson.edu/cares/>

PRESENT POSITION

Clarkson Distinguished Professor
Robert R. Hill '48 Professor of Department of Mechanical and Aeronautical Engineering,
Interim Dean of Engineering
Coulter School of Engineering
Clarkson University, Potsdam, New York 13699
Associated Director, Center for Air Resources Engineering and Science (CARS)
Member of Faculty Advisory Board, Center for Advanced Materials Processing, CAMP

EDUCATION

B.S., Tehran University, 1965
M.S., Purdue University, 1968
Ph.D., Purdue University, 1970

RESEARCH INTERESTS

Aerosols, Multiphase Gas-Solid and Gas-Liquid Flows, Particle Resuspension, Lung and Nose Deposition, Modeling, Environmental Multiphase Flows, Air Pollution, Granular Flows, Turbulence Spray, Hot-Gas Filtration, Nonlinear Random Vibrations, Vibration Control, Air Flow Management, Tribology, Continuum Mechanics, Stochastic Stability, Base Isolation, Earthquake Engineering.

PROFESSIONAL EXPERIENCE

Interim Dean of Coulter School of Engineering, Clarkson University (Since 2005)

Interim Vice Provost for Research, Clarkson University (2004-2005)

Associate Dean of Engineering for Research and Graduate Studies, Clarkson University (2004-2005)

Robert R. Hill '48 Professor of Mechanical and Aeronautical Engineering, Clarkson University (Since 2003).

Clarkson Distinguished Professor, Clarkson University (Since 2001).

Professor of Mechanical and Aeronautical Engineering, Clarkson University (Since 1981).

Chairman, Department of Mechanical and Aeronautical Engineering, Clarkson University (1991-1994).

Vice-Chairman of Fluid Mechanics and Thermal Science Group, Clarkson University (1983-1988).

Chairman of Graduate Committee, Department of Mechanical and Aeronautical Engineering, Clarkson University (1985-1991, 1997-2005).

"Faculty Research Participant at Federal Energy Technology Center (DOE-FETC)," Morgantown, WV (Several weeks in summers of 1999-2007)

"Senior National Research Council Research Associate at Federal Energy Technology Center (DOE-FETC)," Morgantown, WV (1995, Summer of 1996)

Vice-Chairman of Fluid Mechanics and Thermal Science Group, Clarkson University (1983-1988).

Visiting Professor, Department of Mechanical Engineering, University of Calgary, Calgary (Feb.-Dec. 1981).

Professor of Engineering, Shiraz (formerly Pahlavi) University (1976-1981).

Dean of Engineering, Shiraz University (1979-1980).

Associate Dean of Engineering, Shiraz University (1975-1977).

Academic Visitor, School of Mathematics and Department of Mechanical Engineering, University of Newcastle Upon Tyne, Newcastle (Summer, 1978).

Academic Visitor, Department of Civil Engineering, Northwestern University (Summer, 1977).

Visiting Professor, Department of Aeronautics, Imperial College, London (Summer, 1976).

Visiting Scholar, Department of Civil and Geological Engineering, Princeton University (Summer of 1975).

Visiting Scientist, Department of Physics, University of Saskatchewan, Saskatoon (1974-1975).

Associate Professor of Engineering, Shiraz University (1972-1976).

Assistant Professor of Engineering, Shiraz University (1970-1972).

TEACHING EXPERIENCE

Undergraduate (Clarkson, Shiraz & Calgary):

Fluid Mechanics, Intermediate Fluid Mechanics, Statics, Rigid Body Dynamics, Gas Dynamics, Thermodynamics, Engineering Mathematics, Mechanical Vibrations.

Graduate (Clarkson & Shiraz):

Particle Transport, Deposition and Removal, Stochastic Processes for Engineers, Advanced Fluid Mechanics, Theory of Boundary Layer, Mathematical Theory of Turbulence, Theoretical Acoustics, Theoretical Methods in Engineering, Numerical Solution of PDE, Advanced Vibrations, Random Vibrations, Multiphase Flow Modeling, Fluid Mechanics of Aerosols.

Short Courses Given:

Random Vibration (Worcester, July 1987)

Fluid Mechanics of Aerosols (San Diego, August 1990)

Introduction to Fluid Mechanics of Aerosols with Application to Microcontamination Control (San Jose, August 1991), (Las Vegas, July 1992), (Chicago, August 1993), (East Brunswick, August 1994)

Mechanics of Aerosols (Sharif University of Technology, June 1992)

Random Vibrations with Application to Earthquake Engineering (International Institute for Earthquake Engineering and Seismology, June 1992)

Mechanics of Aerosols, (University of Science and Technology of Iran, May-June 1995)

Random Vibrations with Applications to Earthquake Engineering, (Sharif University of Technology, May-June, 1996, and May-June, 1998)

Risk Assessment with Applications to Earthquake Engineering, (Sharif University of Technology, April-May, 1997)

Turbulence, Aerosols and Two-phase Flows, (Lappeenranta University of Technology, Lappeenranta, Finland, January, 1999.

Two-Phase Flow with Application to Sediment Transport (Sharif University of Technology, April-May 1999)

Random Vibrations with Applications to Earthquake Engineering (Sharif University of Technology, April-May, 2000)

Particle Transport Processes in Turbulent Flows - Particle Dispersion and Deposition (Aalborg University, Aalborg, Denmark, May 2-4, 2001)

Random Vibrations with Applications to Earthquake Engineering (Sharif University of Technology, May, 2001)
Introduction to Turbulent Flows (Sharif University of Technology, June 2002)
Turbulence Modeling (Shiraz University, May 2003)
Turbulence and Turbulence Modeling (ISME, May 2004)
From Instability to Chaos and Turbulence (Khajeh Nasir Tousi University, May 2005)
Particle Transport and Deposition, (Lappeenranta University of Technology, Lappeenranta, Finland, (December 2005).
Turbulence Modeling (ISME, May 2007)

PROFESSIONAL ACTIVITIES

Editorial Advisory Board, International Journal of Engineering Science (1997-2007).
Editorial Advisory Board, Particulate Science and Technology.
Editorial Advisory Board, Asian Journal of Structure.
Regional Editor, Iranica Scientia.
Member of Editorial Advisory Board, Journal of Seismology and Earthquake Engineering
Editorial Advisory Board, Asian Journal of Civil Engineering
Editorial Advisory Board, The Uncertainties in Engineering Mechanics
Editorial Advisory Board, Iranian Journal of Science and Technology.
Editor, Iranian Journal of Science and Technology (1973-1974), and (1978-1980).
Associate Editor, Iranian Journal of Science and Technology (1971-1973) and (1975-1978).
Guest Editor of Aerosol Science and Technology for Special Issue on Hot-Gas Filtration, (September 1998)

CONSULTANTSHIP

Consultant, Structural Vibrations and Earthquake Engineering (1976-1980).
Consultant to the Northland Company, Watertown, NY (Summer 1982).
Consulting for different projects, DOE-NETL (1996-2003)

SOCIETY AFFILIATION

American Society of Mechanical Engineers (Fellow)

American Society of Engineering Education
American Association for Aerosol Research
Society of Engineering Science
Iranian Society of Mechanical Engineers (Fellow)
Iranian Society of Civil Engineers (Fellow)
Fine Particle Society (Until 1995)
Earthquake Engineering Research Institute (Until 1992)
International Association for Structural Mechanics in Reactor Technology (Until 1990)

ADMINISTRATIVE ACTIVITIES

Interim Dean of Coulter School of Engineering, Clarkson University (Since 2005)

Interim Vice Provost for Research, Clarkson University (2004-2005)

Associate Dean of Engineering for Research and Graduate Studies, Clarkson University (2004-2005)

Chair, Search Committee for Director of Research, Clarkson University (2004-2005)

Chair, Search Committee for Shulman Chair and Director of Center for Rehabilitation Engineering, School of Engineering, Clarkson University (2004-2005)

Chair, Dean Search Committee, School of Engineering, Clarkson University (2000-2003)

Chairman, Department of Mechanical and Aeronautical Engineering, Clarkson University (1991-1993).

Chairman, Graduate Committee, Department of Mechanical and Aeronautical Engineering, Clarkson University (1985-1991, 1997- Present).

Chair, University Graduate Committee (GERIP) (1997-1999)

Vice-Chairman, Fluid Mechanics and Thermal Sciences Group, Clarkson University (1983-1988).

Dean of Engineering, Shiraz University, Shiraz (1979-1980).

Associate Dean of Engineering, Shiraz University, Shiraz (1975-1977).

Member of the Engineering Committee, Research Council of the Ministry of Science and Higher Education of Iran (1977-1979).

Head of Administration and Job Evaluation, Shiraz University, Shiraz (1973-1974).

THESES SUPERVISED

On the Random Vibration of Beams, J. Hashemi, M.S. Thesis (1972).

Rapid Drainage From an Unconfined Aquifer in the Vicinity of a River, H. Mostofi, M.S. Thesis (1974).

A Modified Quasi-Normal Theory of Turbulence, M. Murgusan, M.S. Thesis (1978).

Applications of Truncated Wiener-Hermite Expansion to Nonlinear Random Vibration with Application to Nonlinear Plate, A.V. Jahedi, M.S. Thesis (1980).

Stochastic and Deterministic Response of Structures: Applications to Containment Structures of Nuclear Power Plants, A.H. Yusefzai, M.S. Thesis (1980).

A Model for Turbulent Flows in Closed Conduits, P. Koppolu, M.S. Thesis (1984).

Thermohydrodynamic Analysis of Wide Thrust Bearings Operating in Laminar and Turbulent Flow Regimes, S.J. Chowdhury, M.S. Thesis (1985).

Stability Analysis of Deterministic and Random Dynamic Linear Systems, S. Abdel-Rahman, Ph.D. Thesis (1986).

A Functional Series Expansion Method for Response Analysis of Nonlinear Systems Subjected to Random Excitations, I.I. Orabi, Ph.D. Thesis (1986).

A Study on the Mechanics of Friction Noise, M.A.S. Mohamed, Ph.D. Thesis (1987).

Kinetic and Turbulence Models for Granular and Two-Phase Flows, D. Ma, Ph.D. Thesis (1987).

The Influence of Grain Size, Grain Shape and Sample Fabric on the Static Liquefaction Behavior of Saturated Granular Materials, V.B. DeGregorio, Ph.D. Thesis (1988) (Co-advisor with S. Motan).

Base Isolation of a Multi-Story Structure - A Comparison of Performances of Various Systems Under Harmonic and Earthquake Ground Motions, F.G. Fan, M.S. Thesis (1988).

Computer Modeling of Transient Three-Dimensional Boiling Enhanced Mixed Convection, K.A. Elrais, Ph.D. Thesis (1988) (Co-advisor with W. Eckerle).

Deterministic and Probabilistic Comparative Studies of Performances of Various Aseismic Base Isolation Systems, Lin Su, Ph.D. Thesis (1989).

Thermodynamically Consistent Rate-Dependent Models for Turbulence, S.J. Chowdhury,

Ph.D. Thesis (1990). (Currently with Bangladesh University of Engineering and Technology, Dhaka, Bangladesh)

Analysis of Dispersion of Small Suspended Particles in Isotropic and Sheared Turbulent Flows, H. Ounis, Ph.D. Thesis (1992). (Currently with Ali7 Incorp, Albany, NY.)

Thermodynamically Consistent Modeling for Rapid Granular and Turbulent Multiphase Flows, S. Abu-Zaid, Ph.D. Thesis (1990).

Experimental Investigation of Dust Particle Deposition in a Turbulent Channel Flow, W. Kvasnak, M.S. Thesis (1991).

Stochastic Response of Secondary Systems in Base-Isolated Structures, Y. Chen, M.S. Thesis (1991).

Passive and Active Vibration Control in a Microgravity Environment, J. Ellison, M.S. Thesis (1992).

Analysis of Deposition of Spherical and Ellipsoidal Particles in Turbulent Flows, F.G. Fan, Ph.D. Thesis (1994).

Experimental Analysis of Granular Simple Shear Flows, K.E. Elliott, M.S. Thesis (1991).

Mechanisms of Particle Removal Due to Turbulent Flow or Substrate Acceleration, M. Soltani, M.S. Thesis (1993). (Currently with Bechtel, Baltimore, MD.)

Transport and Deposition of Particles in a Turbulent Pipe Flows with and without Sudden Expansion, Q. Chen, M.S. Thesis (1994).

Computational Modeling of Particle Transport and Deposition - Microelectronic and Pharmaceutical Applications, Amy Li, Ph.D. Thesis (1994).

Vibration Control of Spacecraft and Space Structures from Lift-Off to On-Orbit Environments, G. Lee-Glauser, Ph.D. Thesis (1994). (Currently with Syracuse University, Syracuse, NY)

Dispersion of Deforming Fuel Droplets in Single Stage to Orbit Combustors, W. Kvasnak, Ph.D. Thesis (1996). (Currently with GE, Schenectady, NY.)

Analysis of Transport, Deposition and Removal of Particles and Fibers in Turbulent Flows, M. Soltani, Ph.D. Thesis (1998). (Currently with Bechtel, Baltimore, MD.)

Computer Modeling of Granular and Two-Phase Turbulent Flows, J. Cao, Ph.D. Thesis (1999).

Particle Transport and Deposition - An Experimental Study, J. Gayne, M.S. Thesis (1998).

Effect of Electrostatic and Capillary Forces on Smooth and Bumpy Particle Adhesion and Detachment, S. Guo, M.S. Thesis (1999).

Computational Modeling of Aerosol Transport and Deposition - Thermophoresis and Electrophoresis Effects, C. He, Ph.D. Thesis (2000). (currently with Corning, Corning NY.)

Computational Modeling of Particle and Fiber Transport, Deposition and Resuspension, H. Zhang, Ph.D. Thesis (2001). (Currently at Seagate Inc., Minneapolis-St Paul, MN.)

Vibration Control in Microgravity Environment with Use of Smart Materials, J. Shimmel, M.S. Thesis (2000).

Numerical Computation for natural Gas Production from In-situ Hydrate Reservoir, C. Ji, M.S. Thesis (2001).

From Flow and Particle Transport Modeling to Vibration Isolation, J. Ellison, Ph.D. Thesis (2001). (Currently with Corning Inc., Corning NY.)

Active Vibration Control of Space Structures during Lift-Off, M. Pausley, M.S. Thesis (2002). (Co-Advisor with R. Jha.)

Particle Removal in Cryogenic Surface Cleaning, C. Toscano, M.S. Thesis (2001). (Currently with ExxonMobil, Houston, TX.)

Stochastic Modeling of Turbulent Liquid Spray Formation in Free Shear Flow Fields, D. Schmidt (2002). (Currently with ExxonMobil, Houston, TX.)

An Experimental Setup for Propane Hydrate Formation and Dissociation within Porous Media, T.K. White, M.S. Thesis (2003).

Fundamentals of Gas-Solid and Gas-Liquid Flows in Porous Media, Ali Reza Mazaheri, Ph.D. Thesis (2003). (Currently with AMA Inc., NASA Langley Research Center, Hampton, VA.)

Combined Active and Passive Vibration Control during Space Shuttle Lift-off, Allison Bailey, M.S. Thesis (2003). (Co-Advisor with R. Jha.)

Exploration of Rheology and Environmental Impact of Bauxite Residue, Elaine Humiston, M.E. Project (2003).

Fundamentals of Chemical-Mechanical Polishing (CMP) Wear Mechanisms, M. Bastaninejad, M.S. Thesis (2004).

Experimental Study of Immiscible Two-Phase Flow through Porous Media under the Influence of Viscous, Capillary, and Gravitational Forces, Josh Cook, M.S. Thesis (2004).

Structural Health Monitoring Based on EMD and the Hilbert Transform, Feng Yan, M.S. Thesis (2005)

BiFunctional Compounds for Copper CMP Slurries, Shravanthi Manikonda, M.S. Thesis (2005). (Co-Advisor with Y. Li.)

Pneumonic Alveolar Cavity Transport and Deposition during Inhalation, Il-soo Chang, M.E. Project (2005).

A Novel Copper CMP Slurry Based on a Mixed Surfactant Passivating System, Deensh Bundi, M.S. Thesis (2005). (Co-Advisor with Y. Li.)

Particle Focusing with Aerodynamic Lenses, Ravi S. Chavali, M.S. Thesis (2006).

Analysis of Aerosol Particle Transport and Deposition in Environmental Applications, Chaoshing Liu, M.S. Thesis (2006).

Fundamentals and Applications of Environmental and Geophysical Multiphase Flows, Kambiz Nazridoust, Ph.D. Thesis (2006). (Currently at CIIT, Triangle Park, NC.)

Rheological Behavior of Bauxite Residue and Bauxite Residue Derivatives, Elaine Humiston, Ph.D. Thesis (2006). ((Currently at Lydall, Schenectady, NY.)

Fundamentals of Gas-Liquid and Gas-Liquid-Solid Flow in a Bubble Column and in a Simple Shear Flow Device Wei Chen, Ph.D. Thesis (2006). (Currently at Bristol-Myers Squibb, New Brunswick, NJ.)

Electrohydrodynamics and Particle Transport in Corotrons – Airflow and Particle Transport in Human Nasal System, Parsa Zamankhan, Ph.D. Thesis (2007). (Currently, Postdoctoral Fellow at City University, NY)

Three-Phase Flows in Slurry Reactors with Application to Coal Liquefaction Processes, Xinyu Zhang, Ph.D. Thesis (In Progress).

Particle Transport and Deposition in Environmental and industrial Applications, Chaoshing Liu, Ph.D. Thesis (In Progress).

Fundamentals of Multiphase Gas-Liquid Flows in Rock Fractures, Dustin Crandall, Ph.D. Thesis (In Progress).

A Study of Multiphase Flow through Porous Media with Applications to Carbon Dioxide

Sequestration, Mellissa Richards, M.S. Thesis (2006).

Hilbert Transform and Structural Identification, Shaoqing Xun, M.S. Thesis (In Progress).

Copper CMP Slurry, Vivek Duvvuru, M.S. Thesis (In Progress). (Co-Advisor with Y. Li.)

Fundamentals of Multiphase Flows in Nanotechnology, Protective Clothing, and Self-Healing Materials, Hojat Nasr, Ph.D. Thesis (In Progress).

Carbon Dioxide Leakage from Underground Reservoirs, Eric Gessner, M.S. Thesis (In Progress).

Biological fluid flows, Kevin Shanley, Ph.D. Thesis (In Progress).

Particle Resuspension from Floors, Daniel Wante, M.S. Thesis (In Progress).

RECENT RESEARCH EXPERIENCES FOR UNDERGRADUATES (Since 1998)

Vibrations Control of Aerospace Structures, J. Shimmel, (DOE, NASA) (1997, 1998)

Computational and Experimental Studies of Hot-Gas Filtration, T. White, (DOE, NSF-REU) (1998, 1999)

Cryogenic Surface Cleaning, C. Toscano, (NSF-REU) (1998,1999)

Vibration Control of Structures during Earthquakes, M. Pausley, (NSF-REU) (2000)

Experimental Study of Particle Transport, Deposition and Removal, L. Kenney, (NSF-REU) (2001)

Experimental Centrifugal Air Filtration Device, Scott M. Delivio (Honor Student) (2001-2002)

Experimental Centrifugal Air Filtration Device, Matthew A. Kotylo (2002)

Wind Flow and Pollutant Transport due to Barrel Burning, Joe Rocca, (McNair Scholar) (2002-2003)

A Model For Droplet Distortion Effects In Aerodynamic Particle Sizing Instruments, Eric Gessner (2004-2005)

Experimental Study of Particle Resuspension form Flooring, Robert Colatutto (2007).

RESEARCH GRANTS AND CONTRACTS

"Noise Reduction," Ministry of Science and Higher Education of Iran, \$5,000 (1972-1974).

"Turbulent Flow in a Confined Wake," Shiraz University Research Council, \$2,500 (1973-1977).

"Design and Construction of an Automatic Machine for Cleaning, Weighing, and Boxing Raisin," Ministry of Science and Higher Education of Iran, \$6,000 (1975-1977).

"Stability Analysis of Mechanical Systems," Ministry of Science and Higher Education of Iran, \$6,500 (1976-1978).

"Vibration Induced by Earthquake, Applications: To Nuclear Reactor Structural Safety and Design," Atomic Energy Organization of Iran, \$300,000 (1976-1980).

"Darrieus Turbine and Aeroelastic Engines," Shiraz University Research Council, \$4,000 (1977-1978).

"Investigation of a Solar Pond for Power Production," Ministry of Power of Iran, Solar Energy Research Center of Shiraz University, and Shiraz University Research Council, \$25,000 (1978-1980).

"Aeroelastic Wind Energy Converter," Division of Research, Clarkson University, \$8,000 (1982-1983).

"Bounds on Earthquake Responses of Structures," NSF, CEE-8319036, \$42,397 (1984-1985).

"Fellowship," Union Carbide, \$9,800 (1986-1987).

"Protective Systems and Retrofit of Building Structures for Earthquake Hazard Mitigation," SNYR, NCEER 2863021F, \$49,133 (1986-1987).

"Optimized Base Isolation Systems," SNYR, NCEER 872007, \$49,000 (1987-1988).

"Analysis of Transient Three-Dimensional Granular and Two-Phase Flows," NSF, MSM-8714687, 40 Service Units CPU Time on Supercomputer Facilities at Cornell University (1987-1989).

"Optimized Base Isolation Systems," SNYR, NCEER 88-2012, \$21,000 (1988-1989). \$4,226 (1990-1991).

"Contamination Avoidance and Removal," New York State Science and Technology Foundation, CAMP, \$27,000 (1989-1990), \$30,000 (1990-1991), \$30,981 (1991-1992),

\$43,232 (1992-1993), \$28,116 (1993-1994).

"Fundamental Study of Dust Particles Adhesion to Electrical Contact of Card Edge Connector Systems," IBM-Endicott, \$150,000 (1990-1991).

"Weld Process Modeling," United Technologies Corporation, \$50,000 (1990-1992), Co-PI with D. Aidun.

"Microgravity," NSF Creativity Award EID-9017552, \$90,000 (1990-1993).

"Fundamental Study of the Mobility of Dust Particles on Surfaces of Electrical and Fiber Optic Connector Systems," IBM-Endicott, \$73,023 (1992-1993).

"A Computational Model for Coal Transport and Combustion," US Department of Energy (DOE-PETC) DE-FG22-91PC91297, \$200,000 (1991-1995).

"Vibration of Equipment on Board Space Structures with Passive and Active Mechanisms," NASA Grant NGT-50825, \$66,000 (1991-1994).

"Hybrid Fuel Dispersion and Combustion for Applications in Rocket Engines" NASA Grant NGT-51130, \$66,000 (1993-1996).

"Vibration Control of Airborne Equipment Using Smart Materials," NASA Grant NGT-51314, \$66,000 (1994-1997).

"Particle Mobility, Adhesion and Removal & Targeted Inhalation Drug Delivery," New York State Science and Technology Foundation, CAMP, \$54,250 (1994-1995).

"Particle and Fiber Transport, Adhesion and Removal," New York State Science and Technology Foundation, CAMP, \$52,000 (1995-1996).

"Ash and Pulverized Coal Deposition in Combustors & Gasifiers," US Department of Energy (DOE-FETC) DE-FG22-94PC94213, \$200,000 (1994-1998).

"Charged Particle and Fiber Transport, Adhesion and Removal," New York State Science and Technology Foundation, CAMP, \$48,000 (1996-1997).

"Particle Transport and Dispersion in a Triboelectric Separator," University of Kentucky/DOE, \$64,000 (1995-1998).

"Fiber Modeling and Removal," Xerox Corporation, \$72,000 (1995-1997).

"Charged and Magnetized Particle Deposition and Removal," New York State Science and Technology Foundation, CAMP, \$30,000 (1997-1998).

"Cryogenic CO₂ Snow flake Surface Cleaning," New York State Science and Technology Foundation, CAMP, \$30,000 (1997-1998).

"Computational Modeling of Fluid Flow and Soot Buildup in High Purity Fused Silica Furnace," Corning Corporation, \$285,614 (1997-2001)

"Particle Transport and Deposition in Hot-Gas Filter Vessels - A Computational and Experimental Modeling Approach," DOE DE-FC26-98FT40447, \$164,745 (1998-2002)

"Time Dependent Particle Image Velocimetry (PIV) Measurements Via Linear Stochastic Estimation (LSE)," NSF CTS-9809784, \$85,000 (1998-2000), Co-PI with M. Glauser

"Computer Code for a Thermodynamic Model of Gas-Hydrate Decomposition in a Porous Media during Pressure Release," DOE, NETL, DE-AP26-98FT01813, \$25,000 (1998-1999)

"Computational Modeling of Chemical-Mechanical Polishing (CMP)," New York State Science and Technology Foundation, CAMP, \$47,500 (1998-2000)

"Microgravity Equipment Vibrations - A Sensitivity and Control Study," NASA Grant NGT8-52849, \$44,000 (1998-2000)

"Computational Modeling of Fuel Spray Formation in Rocket Engines" NASA Grant NGT8-52853, \$66,000 (1998-2001)

"Computer Modeling of Ash Particle Transport to Boiler Surfaces," DOE, NETL DE-AP26-99FT00308, \$25,000 (1998-2000)

"Experimental Study of Gas-Hydrate Formation and Decomposition," DOE/NETL (through University of Pittsburgh), 001060-8, \$60,000 (1999-2001)

"Advanced Computational Model for Three-Phase Slurry Reactors," US Department of Energy (DOE-NETL) DE-FG26-99FT40584, \$200,000 (1999-2002)

"Dispersion of Powder by Shear, Turbulence and Impaction in Inhalation Drug Delivery Systems," Dura Pharmaceuticals, \$47,000 (1999-2000)

"Bearing Technology for Exo-Skeletal Engine Concept," Alpha Star Corp. \$15,000 (1999-2000), Co-PI with L. Minnetyan and C. Cetinkaya

"Two-Phase Flow Measurements," DOE/NETL (Partnership Program through University of Pittsburgh), 001060-8, \$30,000 (2000-2001)

"CO₂ Sequestration," DOE/NETL (Partnership Program through University of Pittsburgh), 001060-8, \$30,000 (2000-2001)

"Fundamentals of Natural Gas and Species Flows from Hydrate Dissociation- Applications to Safety and Sea Floor Instability," US Department of Energy (DOE-NETL) DE-FC26-00NT40916, \$278,183 (2000-2006)

"Heat Transfer Effects in Hot-Gas Filtration," DOE/NETL (Partnership Program through University of Pittsburgh), 001060-8, \$30,000 (2000-2001)

"Transport models for nano-scale MOS devices with applications to CAD for next-generation ICs," NYSTAR (through CAMP), \$10,000 (2001-2002) Co-PI with M.C. Cheng and V. Privman.

"Physical transport models for nano-scale MOS devices, with applications to CAD for next generation ICs," NRC, \$35,000 (2001-2002) Co-PI with M.C. Cheng, J.J. Liou and V. Privman.

"Computational Modeling of CO₂ Sequestration," DOE/NETL (Partnership Program Through University of Pittsburgh), 400960-2, \$35,000 (2001-2002)

"Experimental Modeling of CO₂ Sequestration," DOE/NETL (Partnership Program through University of Pittsburgh), 400960-2, \$35,000 (2001-2002)

"Hot-Gas Filtration," DOE/NETL (Partnership Program through University of Pittsburgh), 400960-2, \$35,000 (2001-2002)

"Hydrate," DOE/NETL (Partnership Program through University of Pittsburgh), 400960-2, \$35,000 (2001-2002)

"Thermal modeling SOI devices," NYSTAR (through CAMP), \$18,000 (2002-2003) Co-PI with M.C. Cheng.

"Particle Transport, Deposition and Removal: Combined Research-Curriculum Development," NSF EEC-0087873, \$400,000 (2001-2006), (Co-PIs, C. Cetinkaya, M. McLaughlin, S. Doheny-Farina, J. Taylor, S. Dhaniyala)

"NYSTAR Center for Environmental Quality System (NY-EQS)," NYSTAR (though Syracuse University), \$1,892,000 (2003-2006) Co-PI with P. Hopke, T. Holsen, J. McLaughlin, and K. Visser

"REU: Particle Transport, Deposition and Removal: Combined Research-Curriculum Development," NSF, \$12,000 (2002-2006).

"Computational Modeling Tools for Corona Devices Used in Electrophotographic Machines," Xerox Corporation, \$60,000 (2001-2005).

“Computational Fluid Dynamic Modeling of Fiber Transport and Deposition in the Respiratory Tract,” NIOSH (through LRRI-F), \$404,677 (2002-2006) Co-PI with P. Hopke

“Aerodynamic lens modeling,” Kodak Corporation, \$12,000 (2002-2003).

“Nanoparticle Transport, aerodynamic lens and CMP modeling,” NYSTAR (through CAMP), \$35,000 (2003-2004)

“Heat flow modeling of SOI devices & integrated circuits,” NYSTAR (through CAMP), \$6,800 (2003-2004) Co-PI with M.C. Cheng.

“Computational Modeling of Hot Gas Filtration with Heat Transfer,” DOE/NETL (Partnership Program through University of Pittsburgh), (C. Liu Fellowship), \$70,000 (2002-2004)

"Computational Modeling of CO₂ Sequestration," DOE/NETL (Partnership Program through University of Pittsburgh), \$70,000 (2002-2004)

"Computational Modeling of CO₂ Sequestration," DOE/NETL (Partnership Program through University of Pittsburgh), (J. Cook Fellowship), \$56,605 (2002-2005)

"Geomechanical Modeling of Fractured Reservoirs," DOE/NETL (Partnership Program through University of Pittsburgh), (D. Crandall Fellowship), \$70,000 (2003-2005)

“Transport, Deposition and Removal of Charged Nanoparticles and Aerodynamic Lens For Nano-particles,” NYSTAR (through CAMP), \$40,000.00 (2003-2005)

“NY STAR Center for Environmental Quality System/EPA Indoor Environmental Research Program Collaboration,” EPA through Syracuse University, \$300,000 (2004-2007) Co-PI with A. Ferro, P. Hopke, S. Dhaniyala, J. Taylor.

“Smart Responsive Nanocomposite for Soldier Protection,” US-ARO, \$169,250 (2005-2007) Co-PI with J. McLaughlin.

“Smart Responsive Nanocomposite for Soldier Protection,” US-ARO, \$55,291 (2005-2007) Co-PI with R. Jha and C. Cetinkaya.

“Developing Supersonic Impactor and Aerodynamic Lens for Separation and Handling of Nano-sized Particles,” DOE, \$50,000 (2006-2007)

“Strategically Targeted Research In Intelligent Built Environmental Systems - Phase 2,” EPA through Syracuse University, \$510,000, (2005-2008) Co-PI with P. Hopke and A. Ferro.

“Intelligent Control via Wireless Sensor Networks for Advanced Coal Combustion Systems” DOE, \$50,000 (2006-2007) Co-PI with A. Behal and S. Kumar.

“Computational and Experimental Techniques for Human Health and Security in Indoor Environments,” EPA, through CoE Syracuse University, CARTI, \$180,000 (2006-2008) Co-PI with J.B. McLaughlin and B. Helenbrook.

“Computational and Experimental Study of Airflow and Particulate Pollutant Transport and Concentration around the Center of Excellence Building,” EPA, Through CoE Syracuse University, CARTI, \$100,000 (2007-2008) Co-PI with Douglas Bohl.

HONORS AND AWARDS

"Research Medal" for promotion of research, Iran (1975).

"Alborz Foundation Award" for the Distinguished Scientist of Iran (1976).

"Ministry of Science and Higher Education Award" for Excellence in Research, Tehran, Iran (1978).

"Research Medal," Tehran, Iran (1978).

"Pi Tau Sigma Distinguished Faculty Award," Clarkson University (1984).

"University Outstanding Advisor Award," Clarkson University (1986).

"Pi Tau Sigma Distinguished Faculty Teaching Award," Clarkson University (1986).

"Personal Computer Curriculum Development Award," Clarkson University (1987)

"Pi Tau Sigma Distinguished Faculty Teaching Award," Clarkson University (1988).

"Honorable Mention for Personal Computer Curriculum Development," Clarkson University (1988)

"University Outstanding Advisor Award," Clarkson University (1988).

"University Distinguished Teaching Award," Clarkson University (1988).

"Pi Tau Sigma Distinguished Faculty Teaching Award," Clarkson University (1990).

"Powder Technology of Japan Award," Tsukuba, Japan (1991)

"First Honorary Member of Iranian Academy of Science," (1996).

"First Honorary Fellow of Iranian Society of Mechanical Engineers (ISME)," (1996).

"Fellow of American Society of Mechanical Engineers (ASME)," (1997)

"Fellow of Iranian Society of Civil Engineers (ISCE)," (1999)

"First Clarkson Distinguished Professor" (2001)

"University Outstanding Advisor Award," Clarkson University (2002).

"Robert R. Hill '48 Professor of Mechanical and Aeronautical Engineering" (2002)

"Elected Prominent Figures of Iran - in Mechanical Engineering" (2003)

"Membership to Five Million Dollar Club" Clarkson University (2006)

"Omar Khyam Plaque of Honor" Scientia, Iranica, Sharif University (2006)

http://www.scientiairanica.ir/Omar_Khayyam_Plaque_of_honor.asp

PATENTS

Aeroelastic Wind Energy Converter, Iranian Patent No. 20923 (1979) (G. Ahmadi).

Methods for Cleaning Surfaces Substantially Free of Contaminants, US Patent 6,530,823 B1 (2003) (G. Ahmadi, P.E. Lewis, A.G. Tannous, K. Makhamreh and K.H. Compton).

Apparatus for Cleaning Surfaces Substantially Free of Contaminants, US Patent 6,543,462 B1 (2003) (P.E. Lewis, G. Ahmadi, A.G. Tannous, K. Makhamreh and K.H. Compton).

Methods for Cleaning Surfaces Substantially Free of Contaminants Utilizing Filtered Carbon Dioxide, US Patent 6,719,613 (2004) (G. Ahmadi, P.E. Lewis, A.G. Tannous, K. Makhamreh and K.H. Compton).

Methods for Cleaning Utilizing Multi-Stage Filtered Carbon Dioxide, US Patent 6,945,853 B2 and (2005) (G. Ahmadi, P.E. Lewis, A.G. Tannous, K. Makhamreh).

SYNERGISTIC ACTIVITIES

- Served as the PI for NSF CRCRD project and developed a series of on-line course on particle transport, deposition and removal. <http://www.clarkson.edu/projects/crcrd/index.php>
- Developed an efficient computational model for Brownian diffusion of particles in laminar and turbulent flows. The method is now being used in FLUENT commercial code.
- Contributed to the development of practical method for dilute two-phase flow analysis. The

approach is being used to improve operation and design of engineering systems in several companies (e.g., Xerox, Corning, Dura Pharmaceutical, Southern).

- Contributed to the understanding of the mechanism that controls particle deposition, transport, dispersion and removal in turbulent flows.
- Gave many short courses on aerosols, two-phase flows, turbulence, random vibrations and vibration control in the US and abroad.

PUBLICATIONS

Two books, 400 archival papers, 500 technical conference presentations and 100 Invited presentations.

BOOKS

A. Razani and G. Ahmadi, "Mathematical Methods in Engineering and Science," Vol. 1, Shiraz University Press No. 87 (1977).

G. Ahmadi and A. Razani, "Mathematical Methods in Engineering and Science," Vol. 2, Shiraz University Press No. 90 (1977).

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G. Ahmadi, "On Two-Way and Four-Way Coupling in Gas-Solid Flows," US Department of Energy, National Energy Technology Laboratory, Morgantown, WV, July 26, 2007.

G. Ahmadi, "Particle Resuspension Model for Indoor Air Quality Applications," Strategically Targeted Research in Intelligent Built Environmental Systems, Science Advisory Committee Review, Syracuse University, July 31 - August 1, 2007

X. Zhang, G. Ahmadi, J. Qian and A. Ferro, "A Practical Model for Indoor Particle Resuspension Due to Human Walking," Strategically Targeted Research in Intelligent Built Environmental Systems, Science Advisory Committee Review, Syracuse University, July 31 - August 1, 2007

X. Zhang and G. Ahmadi, "Particle Rolling Detachment in Turbulent Flows with Capillary and Deformation," Strategically Targeted Research in Intelligent Built Environmental Systems, Science Advisory Committee Review, Syracuse University, July 31 - August 1, 2007

M. Salmanzadeh and G. Ahmadi, "Transport and Deposition of Evaporating Droplets in Indoor Environment," Strategically Targeted Research in Intelligent Built Environmental Systems, Science Advisory Committee Review, Syracuse University, July 31 - August 1, 2007

K. Shanley, G. Ahmadi, P.K. Hopke and Y-S. Cheng, "Particle Deposition in a Realistic Nasal Cavity," Strategically Targeted Research in Intelligent Built Environmental Systems, Science Advisory Committee Review, Syracuse University, July 31 - August 1, 2007

D. Wante, R. Colatutto, and G. Ahmadi, "Particle Resuspension From Rough Flooring - An Experimental and Computational Study," Strategically Targeted Research in Intelligent Built Environmental Systems, Science Advisory Committee Review, Syracuse University, July 31 -

August 1, 2007.

INVITED LECTURE PRESENTATIONS (SINCE 1987)

"Granular and Two-Phase Flow Modeling," DOE Morgantown Energy Technology Center, Morgantown, WV (June 1987).

"Introduction to Random Vibration," Short Course given at Worcester Polytechnic Institute, Worcester, MA (July 1987).

"Modeling Multiphase Flows," CELANES Company, Morristown, NJ (April 1989).

"Recent Developments in Modeling Granular Flows, Turbulent Flows and Two-phase Multiphase Flows," DOE Pittsburgh Energy Technology Research Center, Pittsburgh, PA (July 1989).

"Earthquakes and Base Isolation against Ground Motion," in the CARL GUNNARD JOHNSON Colloquium Series at Worcester Polytechnic Institute, Worcester, MA (October 1989).

"Continental Drift, Plate Tectonic and Earthquake Engineering," SUNY-Binghamton (March 1990).

"Review of Base Isolation Techniques Against Earthquakes," International Institute of Earthquake Engineering and Seismology, Shiraz, Iran (May 16, 1990).

"Recent Developments in Aseismic Base Isolation Design Strategy," University of Science and Technology, Tehran, Iran (May 29, 1990).

"Seismicity of Iran and New Techniques for Earthquake Resisting Design" Sharif University of Technology, Tehran, Iran (May 30, 1990).

"Potential Base Isolation Techniques for Masonry and Adobe Structures," Tehran University, Tehran, Iran (June 11, 1990).

"Earthquake Risk Assessment of Iran and Base Isolation Techniques," Society of Structural Engineers, Tehran, Iran (June 13, 1990).

"Research Methodology in Science and Engineering" Sharif University of Technology, Tehran, Iran (June 19, 1990).

"Recent Developments in Thermodynamical Modeling of Granular, Single and Multiphase Turbulent Flows," University of Poitiers, Poitiers, France (June 25, 1990).

"Fluid Mechanics of Aerosol Dispersion," Short Course AHE-2, 21st Annual Meeting of the Fine Particle Society, San Diego, CA (August 21, 1991).

"Earthquakes and Base Isolation Design Strategy," Alfred University, Alfred, NY (September 20, 1990).

"On Thermodynamical Modeling of Single and Multiphase Turbulent Flows," NASA-MARSHALL Space Flight Center, Huntsville, AL (October 9, 1990).

"Recent Developments in Simulation Methods for Particle Transport," University of Alabama, Tuscaloosa, AL (October 11, 1990).

"On Thermodynamically Consistent Turbulence Modeling," University of Pittsburgh, Pittsburgh, PA (February 19, 1991).

"Numerical Experiments on Mechanics of Aerosols," DOE Pittsburgh Energy Technology Research Center, Pittsburgh, PA (February 20, 1991).

"From Mechanics of Aerosols to Simulation of Microcontamination Process," Twentieth Annual Corporate Contamination Control Seminar, IBM Technical Educational Center, Thornwood, NY (April 22, 1991).

"Two-Phase Flow Analysis," Shiraz University, Shiraz, Iran (June 12, 1991).

"Base Isolation Systems," Sharif University of Technology, Tehran, Iran (June 17, 1991).

"Introduction to Fluid Mechanics of Aerosols with Applications to Microcontamination Control," Short Course CCR-14, 22nd Annual Meeting of the Fine Particle Society, San Jose, CA (August 1, 1991).

"Overview of Aerosol Transport in Turbulent Flows," DOE Pittsburgh Energy Technology Research Center, Pittsburgh, PA (August 13, 1991).

"Overview of Dust Particles Migration and Deposition Processes," IBM-Endicott, Endicott, NY (September 17, 1991).

"Overview of Computational Modeling of Aerosols Dispersion and Deposition in Turbulent Flows," University of Nagoya, Nagoya, Japan. Co-Sponsored with the Japan Society of Powder Technology and the Information Center of Powder Technology of Japan. (September 30, 1991).

"Particle Transport and Deposition in Complex Turbulent Flows," DOE Pittsburgh Energy Technology Research Center, Pittsburgh, PA (April 23, 1992).

"Mechanics of Aerosols," Short Course given at Sharif University of Technology, Tehran, Iran (June 13-16, 1992).

"Trend of Engineering Research in the Next Decade," Panel Discussion, Academy of Science of Iran, Tehran, Iran (June 21, 1992).

"Random Vibrations with Applications to Earthquake Engineering, Recent Developments in Passive and Active Control," Short Course given at the International Institute for Earthquake Engineering and Seismology, Tehran, Iran (June 23-26, 1992).

"Introduction to Fluid Mechanics of Aerosols with Applications to Microcontamination Control," Short Course CCR-4, 23rd Annual Meeting of the Fine Particle Society, Las Vegas, Nevada (July 13, 1992).

"Aerosol Transport in Turbulent Flows - A Computational Modeling Approach," Illinois Institute of Technology, Chicago, IL. Co-Sponsored by the Chemical and Mechanical Engineering Departments. (October 7, 1992).

"The Role of Computational Methods in Engineering," Panel Chairman, Closing Ceremony of the International Congress on Computational Methods in Engineering, Shiraz University, Shiraz, Iran, May 2-6, 1993.

"Overview of Computational Modeling of Particle Transport and Deposition Processes," Amir Kabir University (Tehran Polytechnic), Tehran, Iran (May 17, 1993).

"Passive Control Strategies for Aseismic Design," Tarbiat Modars University, Tehran, Iran (May 23, 1993).

"Overview of Base Isolation Design Strategy," Amir Kabir University (Tehran Polytechnic), Tehran, Iran (May 24, 1993).

"On Computational Modeling of Granular and Dense Turbulent Two-Phase Flows," DOE Pittsburgh Energy Technology Research Center, Pittsburgh, PA (August 24, 1993).

"Introduction to Fluid Mechanics of Aerosols with Applications to Microcontamination Control," Short Course CCR-2, The 24th Annual Meeting of the Fine Particle Society, and First International Conference on Pharmaceutical Sciences and Technology, Chicago, Illinois, (August 27, 1993).

"Particle Transport, Deposition and Resuspension in Turbulent Flows, 1966-1993," Purdue University, W. Lafayette, IN (October 14, 1993).

"Engineering Education in 21 Century," University of Toledo, Toledo, OH, (April 4, 1994).

"Recent Advances in Particle Transport Analysis - Dilute and Dense Flows," Morgantown Energy Technology Center, U.S. Department of Energy, Morgantown, WV (June 10, 1994).

"Computational Modeling of Particle and Fiber Transport and Deposition," Xerox Corporation, Rochester, NY (August 19, 1994).

"Computational Modeling of Particle Transport, Deposition and Removal," IBM Corporation, Burlington, VT (August 29, 1994).

"Recent Development in Computer Simulation of Particle Transport and Deposition in the Upper Tracheobronchial Tree," Symposium on Pharmaceutical Aspect of Drug Delivery to Lungs, Wyeth-Ayerst Pharmaceutical Sciences, SUNY-Plattsburgh College Center, Plattsburgh, NY (October 11, 1994).

"Flow-Induced Resuspension of Rigid-Link Fibers from Surfaces," Xerox Corporation, Rochester, NY (May 3, 1995).

"Research Techniques in Engineering," Sharif University of Technology, Tehran, Iran, (May 23, 1995).

"Recent Development on Vibration Control of Equipment Aboard Spacecraft," Amir Kabir University, (Dept. of Mechanical Engineering), Tehran, Iran, (May 30, 1995).

"Base Isolation and Active Control Techniques for Earthquake Protection of Structures," Amir Kabir University, (Dept. of Civil Engineering), Tehran, Iran, (May 31, 1995).

"Recent Development on Computational Modeling of Particle Transport, Deposition and Resuspension," Shiraz University, Shiraz, Iran, (June 6, 1995).

"Recent Trends in Engineering Education and Engineering Research" Shiraz University, Shiraz, Iran, (June 7, 1995).

"Passive and Active Vibration Control Strategies for Earthquake Resisting Structural Design," Iran University of Science and Technology, Tehran, Iran, (June 10, 1995).

"Vibration Control of Equipment-From Lift-Off to Orbit," Iran University of Science and Technology, Tehran, Iran, (June 12, 1995).

"Aerosols - Computational and Experimental Techniques," Iran University of Science and Technology, Tehran, Iran, (June 14, 1995).

"Particle - Turbulence Interactions - Part I, Dilute Flows," Morgantown Energy Technology Center, U.S. Department of Energy, Morgantown, WV (September 13, 1995).

"Particle - Turbulence Interactions - Part II, Dense Flows," Morgantown Energy Technology Center, U.S. Department of Energy, Morgantown, WV (September 20, 1995).

"Modeling of Granular and Dense Two-Phase Flows," Department of Mechanical Engineering, University of Pittsburgh, Pittsburgh, PA (October 26, 1995).

"Particles Transport and Deposition in Turbulent Flows," Department of Mechanical Engineering, West Virginia University, Morgantown, WV (November 29, 1995).

"Computational Modeling of Particles Deposition in Human Lung," NIOSH, Morgantown, WV

(November 30, 1995).

"Recent Advances in Computational Modeling of Particle Transport, Deposition and Resuspension," Center for Applied Energy Research, University of Kentucky, Lexington, KY (December 18, 1995).

"Random Vibrations with Applications to Earthquake Engineering," Short Course given at Sharif University of Technology, Tehran, Iran (May 15-June 8, 1996)

"Modeling Dilute and Dense Two-Phase Flows," Department of Mechanical Engineering, Tehran University, Tehran, Iran (May 25, 1996).

"On Research Techniques in Engineering," Sharif University of Technology, Tehran, Iran, (June 1, 1996).

"Future Trends in Engineering Research and Engineering Education," Academy of Science Honorary Lecture Presentation, Tehran University, Tehran, Iran, (June 12, 1996).

"Risk Assessment with Applications to Earthquake Engineering," Short Course given at Sharif University of Technology, Tehran, Iran (April 14-May 12, 1997)

"Recent Advances in Computational Modeling of Particles Transport Deposition and Resuspension - Industrial Applications," Amir Kabir University, Tehran, Iran, (May 11, 1997).

"New Research Trends in Engineering," Sharif University of Technology, Tehran, Iran, (May 13, 1997).

"Computational Modeling of Particles Transport, Deposition and Resuspension in Industrial Systems," MEMC, St Louis, MO, (June 27, 1997).

"Some Ideas for Computational Modeling of Dilute and Dense Turbulent Two-Phase Flows," FLUENT Inc., Lebanon, NH, (July 17, 1997).

"On Computational Modeling of Particles Transport and Deposition in Hot-Gas Filter Vessels," Federal Energy Technology Center, Morgantown, WV (August 6, 1997).

"Recent Advances in Particle Transport, Deposition and Removal," ASYST Technologies Inc., Fremont, CA (October 13, 1997).

"Computational Modeling of Particles Transport and Soot Buildup in Furnaces, " Corning Corporation, Corning, NY (April 17, 1998).

"Random Vibrations with Applications to Earthquake Engineering," Short Course given at Sharif University of Technology, Tehran, Iran (May 13-June 3, 1998).

"Computational Modeling of Dilute Two-Phase Flows," Amir Kabir University, Tehran, Iran, (May

24, 1998).

"Computational Modeling of Dense Two-Phase Flows," Amir Kabir University, Tehran, Iran, (May 26, 1998).

"Industrial Application of Particle Transport and Deposition," Iranian Society of Mechanical Engineers, Tehran, Iran, (May 27, 1998).

"Recent Advances in Direct Numerical Simulation of Two-Phase Flows," Amir Kabir University, Tehran, Iran, (May 31, 1998).

"Experimental Study of Particle Deposition and Transport in Dilute and Dense Two-Phase Flows," Amir Kabir University, Tehran, Iran, (June 2, 1998).

"Research Approach in Mechanical and Aeronautical Engineering," Sharif University of Technology, Tehran, Iran, (May 27, 1998).

"Thermodynamics of Turbulence and Modeling," University of Darmstadt, Darmstadt, Germany (June 15, 1998).

"Thermodynamics of Granular Flows and Kinetic Models," University of Darmstadt, Darmstadt, Germany (June 15, 1998).

"Thermodynamics of Turbulent Multiphase Flows," University of Darmstadt, Darmstadt, Germany (June 16, 1998).

"Computational Modeling of Dilute and Dense Turbulent Multiphase Flows, and Applications," University of Darmstadt, Darmstadt, Germany (June 16, 1998).

"On Computer Modeling of Deposition in Hot-Gas Filter Vessel," CONSOL Inc., Pittsburgh, PA, (August 10, 1998).

"Overview of Computational Modeling of Particle Transport, Deposition and Removal," MEMC, St Louis, MO, (August 10, 1998).

"Particle Transport and Deposition in Turbulent Flows - Industrial and Environmental Applications," Worcester Polytechnic Institute, Worcester, MA (October 8, 1998).

"Turbulence, Aerosols and Two-phase Flows," Short Course, Lappeenranta University of Technology, Lappeenranta, Finland, January 12-15, 1999.

"Computational Modeling of Fused Silica Furnace," Corning, Corning, NY (March 12, 1999).

"Multiphase Flows and Aerosols," Short Course given at Sharif University of Technology, Tehran, Iran (April 15-May 12, 1999).

"Computational Modeling of Two-Phase Flows," Ferdousi University, Mashad, Iran, (April 28, 1999).

"Computational Modeling of Spray Formation," Shiraz University, Shiraz, Iran, (May 3, 1999).

"Industrial Application of Particle Transport and Deposition," Iranian Society of Mechanical Engineers, Tehran, Iran, (May 27, 1998).

"Multiphase Flows and Spray," Amir Kabir University, Tehran, Iran, (May 4, 1999).

"Base Isolation with Applications to Earthquake Engineering," Sharif University of Technology, Tehran, Iran (May 3, 1999).

"Research Techniques in Engineering," Sharif University of Technology, Tehran, Iran, (May 10, 1999).

"Industrial Applications of Particle Transport and Deposition in Turbulent Flows," Lockheed Martin, Atlanta, GA, July 2, 1999.

"A Simple Model for Natural Gas Production from Hydrate Decomposition by Depressurization," Federal Energy Technology Center (FETC), U.S. Department of Energy, Morgantown, WV (July 7, 1999).

"Recent Advances in Particle Transport and Deposition in Industrial Applications," McDermott Technology, Alliance, OH, (August 16, 1999).

"Particle Transport and Deposition in the Wilsonville Hot-Gas Filtration System," Federal Energy Technology Center (FETC), U.S. Department of Energy, Morgantown, WV (August 20, 1999).

"Ash Transport, Deposition in the Kellog (PCD) Filter Vessel at Wilsonville," Southern Company Services, Wilsonville, AL (January 7, 2000).

"Overview of Research Techniques in Engineering and Sciences," Sharif University of Technology, Tehran, Iran, (May 1, 2000).

"Protection of Secondary Systems in Structures Against Earthquakes," Center for Research for Electric Power Plants (MTN), Tehran, Iran, (May 6, 2000).

"Application of Particle Transport and Deposition in Industry," Amir Kabir University, Tehran, Iran, (May 13, 2000).

"Computational Modeling of Dilute and Dense Two-Phase Flows - Applications to Hot-Gas Cleaning and Coal Processing," NETL, Pittsburgh, PA (July 14, 2000).

"Fundamentals of Natural Gas and Species Flows From Hydrate Dissociation," NETL, Morgantwon, WV (January 10, 2001).

"Simulation of Gas Flow in Siemens-Westinghouse Filter Vessel at PSDF - Modified Designs," Southern Company Services, Wilsonville, AL (January 26, 2001).

"Computational Modeling of Soot Transport in Fused Silica Furnaces," Corning Corporation, Corning, NY (April 12, 2001).

"Particle Transport Processes in Turbulent Flows," Aalborg University, Aalborg, Denmark, (May 2-4, 2001).

"Computational Modeling of Two-Phase Flows," Amir Kabir University, Tehran, Iran, (May 18, 2001).

"Computer Simulation of Gas Flow and Particle Transport in Siemens-Westinghouse PCD at PSDF," Southern Company Services, Wilsonville, AL (October 12, 2001).

"Applications of Gas-Solid and Gas-Liquid Multiphase Flows," North Carolina State University, Raleigh, NC (March 19, 2002).

"Computational Modeling of Multiphase Flows," Shiraz University, Shiraz, Iran (June 10, 2002).

"Computational Modeling of Air Pollution," Amir Kabir University, Tehran, Iran (May 19, 2003)

"Turbulence and Turbulence Modeling," Short Course, Center for Computational Mechanics, Shiraz University, Shiraz, Iran (May 21, 2003).

"Particle Transport, Deposition and Removal," University of Darmstadt, Darmstadt, Germany (May 31, 2003).

Experimental and Numerical Studies of Gas-Liquid Displacement in Flow Cells, with Application to Carbon Dioxide Sequestration in Brine Fields, National Energy Technology Laboratory (NETL), US Department of Energy, July 15, 2003

"Environmental Applications of Multiphase Flows" Syracuse University, Syracuse, NY (October 3 2003)

"Applications of Multiphase Gas-Solid and Gas-Liquid Flows" Case Western Reserve University, Cleveland, OH October 17, 2003).

"Computational Modeling of Particle Transport, Deposition and Entrainment in Turbulent Flows – Environmental Applications," University of Virginia, Charlottesville, VA (November 13, 2003).

"Computational Modeling of Particle Transport, Deposition and Entrainment in Turbulent Flows," Xerox Corporation, Webster, NY (November 17, 2003).

“Applications of Multiphase Flows” Semnan University, Semnan, Iran (May 14, 2004).

“Turbulence,” Short Course, ISME, Tehran, Iran (May 25-28, 2004).

“Particle Resuspension in Turbulent Flows” Sharif University, Tehran, Iran (May 30, 2004).

“Computational Modeling of Multiphase Flows” Kerman University, Kerman, Iran (June 1, 2004).

“Multiphase Flows” Petrochemical Research Center, Arak, Iran (June 6, 2004).

“Modeling of Smart Clothing,” Army Natick Research Center (November 16, 2004) (With McLaughlin).

“Modeling of Self healing Agents into Cracks,” Army Natick Research Center (November 16, 2004) (With McLaughlin).

“Effect of Human Activities on Exposure to Gaseous and PM Pollutants in the Personal Microenvironment,” EPA, Triangle Park, NC (November 24, 2004).

New Challenges for Chemical Mechanical Polishing-A Model for Surface Removal, Workshop, presented at Nanomaterials 2004: Nanoelectronics, Nanophotonics, and Nanomagnetism Conference, Stamford , CT (October 14-17, 2004) (With S.S. Babu)

“Introduction to Nanotechnology,” United Defense, York, PA (February 23, 2005).

“From Flow Stability to Chaos, and Turbulence” Khajeh-Nasir Tosi University, Tehran, Iran (May 22, 2005)

“Particle Resuspension and Indoor Air Pollution,” Shiraz University, Shiraz, Iran (May 24, 2005)

"Particle Transport, Deposition and Removal," Short Course, Lappeenranta University of Technology, Lappeenranta, Finland, December 15-20, 2005.

“Recent Advances in Multiphase Flows through Porous and Fractured Media,” Khajeh-Nasir Tosi University, Tehran, Iran (May 2, 2006).

"Particle Transport, Deposition and Removal," Short Course, Lappeenranta University of Technology, Lappeenranta, Finland, December 15-20, 2005.

“Nano particle transport, deposition and removal,” in Production, Transport and Application of Nanoparticles Workshop/Lecture Series, von Karman Institute for Fluid Dynamics, Brussels, Belgium, February 26 - March 1, 2007.

“Environmental and Biological Modeling Applications,” in Production, Transport and Application of Nanoparticles Workshop/Lecture Series, von Karman Institute for Fluid Dynamics, Brussels, Belgium, February 26 - March 1, 2007.

“Applications to Supersonic and Hypersonic Impactors and Aerodynamic Lenses,” in Production, Transport and Application of Nanoparticles Workshop/Lecture Series, von Karman Institute for Fluid Dynamics, Brussels, Belgium, February 26 - March 1, 2007.

“Turbulence,” Short Course, ISME, Tehran, Iran (May 19-20, 2007).

“Computational Modeling of Particle Transport and Deposition in Human Respiratory Tracts,” Shiraz University, Shiraz, Iran (May 19, 2007)