

# Energy Long Island 2007 Conference



October 25, & October 26, 2007



Farmingdale  
State College



# Energy Long Island 2007 Conference



**A two day conference and exposition on renewable energy technologies  
for stake holders and the general public**

We are proud to welcome you to be part of this exciting, timely conference and exposition jointly organized by the Alternate Energy Centers at Farmingdale State College and the Advanced Energy Research and Technology Center at Stony Brook University. The conference will have sessions for the technical personnel in the field, scientific paper presentations, keynote presentations on policy and technical content, student poster sessions, and panel discussions on current energy issues.

The conference will also have an exposition with leading renewable energy manufacturers displaying their products and services.

We are sure you will derive full benefit out of the expertise that has been gathered in the form of speakers and exposition participants. Your participation shows your commitment to the concern you have on the issue of energy and to be a part of the solution to the problems we face in the use of energy.

Sincerely,

*Dr. Shahrabi*  
*Dean, School of Engineering Technologies*  
*Farmingdale State College*

*Dr. Yacov Shamash*  
*Dean, College of Engineering and Applied Sciences*  
*Stony Brook University*



# Conference Agenda

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**Thursday, October 25, 2007**

8:00am - 8:45am	Registration Continental Breakfast and Vendor Displays
8:45am - 9:00am	Welcome: W. Hubert Keen, President Farmingdale State College
	<b>Plenary Session I:</b> Chair: Marjaneh Issapour, Farmingdale State College
9:00am - 9:30am	<i>Energy Research and Development</i> Paul Decotis, NYSERDA
9:30am - 10:00am	<i>Energy Initiatives at Brookhaven National Laboratory</i> Doon Gibbs, Deputy Director for Science and Technology, BNL
10:00am - 10:30am	<i>The Role of Atomic and Electronic Surface Structure in Nano Catalyst Engineering</i> Nenad M. Marković, Material Sciences Division Argonne National Laboratory and the University of Chicago
10:30am - 11:00am	<i>Biology and Energy Self Sufficiency</i> Fritz Henn, Associate Laboratory Director, BNL
11:00am - 11:15am	Coffee Break
11:15am - 12:15pm	Keynote: <i>Energy Research: Forefront and Challenges</i> Mildred Dresselhaus, Institute Professor, MIT
12:15pm - 1:15pm	Lunch and Student Poster Display
1:15pm - 5:30pm	<b>Parallel Symposia Session: Symposium A: Roosevelt 111</b>
1:15pm - 2:45pm	<b>Session I: Local, Regional and National Energy Policy, Regulations and Initiatives</b> Chair: Serdar Elgun, Farmingdale State College Christine Donovan, NYSEIA Joseph Schroeder, Suffolk County Legislature Randy Spitzer, LIPA
2:45pm - 3:00pm	Coffee Break
3:00pm - 4:15pm	<b>Session II: Solar 101</b> Chair: Adam Filios, Farmingdale State College Jonathan Lane, Quad State Solar
4:15pm - 5:30pm	<b>Session III: Solar Estimate – Solar Corps</b> Chair: Serdar Elgun, Farmingdale State College Gordian Raacke, RELI

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1:15pm - 5:30pm	<b>Parallel Symposia Session: Symposium B: Forefronts in Basic Energy Research</b> <b>Session I:</b> <i>Energy, Climate, and the Environment</i> Chair: Ralph James, BNL
1:15pm - 1:45pm	<i>Diatoms &amp; Coccoliths in the Ocean: From Biomineralization to Ocean Acidification</i> Cindy Lee, Stony Brook University
1:45pm - 2:15pm	<i>Simulation of Future Climate Changes Caused by Different Uses of Energy</i> Minghua Zhang, Stony Brook University
2:15pm - 2:45 pm	<i>Advanced Coal Technologies for a Carbon-constrained World</i> Guodong Sun, Stony Brook University
2:45pm - 3:15pm	<i>The Biorefinery Concept: Its Emergence and Application on Long Island</i> Devinder Mahajan, BNL and Stony Brook University
3:15pm - 3:30pm	Coffee Break and Student Posters
	<b>Session II:</b> Nanotechnology: Enhanced Electronics and Hydrate Nucleation Chair: Devinder Mahajan, BNL and Stony Brook University
3:30pm - 4:00pm	<i>Enhancing the Power Output of PEM Fuel Cells with Nanoparticles</i> Miriam Rafailovich, Stony Brook University
4:00pm - 4:30pm	<i>Organic Electronics in Energy Applications</i> Kalle Levon, Brooklyn Polytechnic University
4:30pm - 5:00pm	<i>Surfactant Control of Methane Hydrate Formation</i> Tadanori Koga, Stony Brook University
5:00pm - 5:30pm	<i>PEM Fuel Cells</i> Hazem Tawfik, Farmingdale State College
1:15pm - 5:30pm	<b>Parallel Symposia Session: Symposium C: Roosevelt Loft Lounge</b>
1:15pm - 2:45pm	<b>Session I:</b> <i>Programs for Funding Energy Education</i> Moderator: Miriam Deitsch, Farmingdale State College C. Handlman, Heliotronics David Ferguson, Stony Brook University Adele Ferranti, NYSERDA Karen Miller Beth Fiteni
2:45pm - 3:00pm	Coffee Break
3:00pm - 4:15pm	<b>Session II:</b> <i>School Facility Managers Panel – Green School Buildings</i> Chair: Yelleshpur Dathatri, Farmingdale State College Dan Sabia Fred Koelbel, President, SBGA, West Islip School District
4:15pm - 5:30pm	<b>Session III:</b> <i>PV Installations for Commercial and Nonprofits</i> Chair: Yelleshpur Dathatri, Farmingdale State College David Hill, NESEA
6:00pm - 8:00pm	<b>Dinner</b> Awards for Student Posters, Musical Performance: Mathew Tischler, Piano

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## Friday, October 26, 2007

8:00am - 8:45am	Registration Continental Breakfast and Vendor Displays
8:45am - 9:00am	Welcome: Kamal Shahrabi, Dean School of Engineering Technologies, Farmingdale State College
	<b>Plenary Session II:</b> Chair: Miriam Rafailovich, Stony Brook University
9:00am - 10: 00am	<b>Keynote:</b> <i>Visualizing High-Pressure Diesel and Biodiesel Sprays .with Single-Shot Ultrafast X-ray Phase Contrast Imaging</i> Jin Wang, Advanced Photon Source, Argonne National Laboratory
10:00am - 10: 30am	<i>National Grid Perspective on the Future of Energy on Long Island</i> David Manning, Executive Vice President, National Grid
10:30am - 11:00am	<i>Opportunities in Condensed Matter and Materials Research</i> David Nelson, National Science Foundation
11:00am - 11:15am	Coffee Break
11:15am - 11:45am	Status Report of AERTC Yacov Shamash, Dean, College of Engineering and Applied Sciences, Stony Brook University
11:45am - 12:15pm	<i>Nuclear Energy - Alternative Energy Source?</i> Lev Neymotin, Center for Non-Proliferation and National Security, BNL
12:15pm - 12:45pm	Lunch and Student Posters
12:45pm - 2: 45pm	<b>Parallel Symposia Session: Symposium A</b> <b>Session I:</b> Chair: Yelleshpur Dathatri, Farmingdale State College
12:45pm - 1:05pm	<i>Amorphous PV</i> Jim Groelinger, EPV
1:05pm - 1:25pm	<i>Polycrystalline PV</i> Charles Fortmann, Stony Brook University
1:25pm - 1:45pm	<i>Solar Cells &amp; Wire Bonding</i> Michael Mc Ewon, Orthodyne



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**Session II:**

Chair: Amit Bandyopadhyay, Farmingdale State College

- 1:45pm - 2:05pm      *The Architectural Aspects of Green Buildings*  
Bill Chaleff, Chaleff & Rogers Architects
- 2:05pm - 2:25pm      *Zero Energy Building*  
Peter Caradonna, LEED Architect
- 2:25pm - 2:45pm      *Energy Efficient Green Building HVAC Alternative Designs*  
Steven Cohen, Yazaki Energy Systems
- 2:45pm - 3:00pm      Coffee Break

1:15pm - 2:45pm      **Parallel Symposia Session: Symposium B: Roosevelt 111**

- 1:15pm - 2:45pm      *Business Aspects of Photovoltaics* Panel Discussion  
Moderator: Steve Eber, KEYSPAN  
Andy Meserve, General Electric  
Jim Groelinger, Energy Photovoltaics, Inc.  
Tony Altman, International Resources Group  
Mar Kelly, Suntechnics  
Anthony Pereira, Altpower
- 2:45pm - 3:00pm      Coffee Break

12:45pm - 2:45pm      **Parallel Symposia Session: Symposium C: Roosevelt Loft Lounge**

**Session I:**

Gregory Sachs, USMMA

- 12:45pm - 1:15pm      **Farmingdale IRTT Student Research Projects**  
Hazem Tawfik, IRTT, Farmingdale State College
- 1:15pm - 1:45pm      *NYIT Solar Decathlon*  
Gregory Sachs, USMMA

**Session II:**

Chair: Adam Filios, Farmingdale State College

- 1:45pm - 2:45pm      *Wind Energy 101*  
Roy Rakobitsch, Go Solar Inc.
- 2:45pm 3:00pm      Coffee Break

**Adjourn:** Marjaneh Issapour, Chairman, Energy Long Island 2007 Conference

**Nenad M. Markovic**

***Title: The Role of Atomic and Electronic Surface Structure in Nanocatalyst Engineering***

The need to understand the key structure/composition relationships governing the electrocatalytic behavior of metal surfaces continuous to motivate fundamental studies of surface processes at the electrified solid-liquid interfaces. To this end, systematic variation of surface crystallography and or surface composition has been employed to delineate very important electrocatalytic trends. Although the field is still in its infancy, a great deal has already been learned and trends are beginning to emerge. This progress has been influenced greatly by the development of in-situ surface sensitive probes and vibrational spectroscopes, which in combination with ex-situ UHV techniques and classical electrochemical methods have been used to establish a link between the macroscopic kinetic rate of the reaction and the microscopic properties at the electrified metal solution interface. The main objective of this presentation is to demonstrate that selection of materials to enhance the efficiency in electrochemical energy conversion systems must be guided by some predictive ability with respect to surface structure, size, composition and shape of nanoparticles. The preponderance of electrocatalytic reactions discussed in this presentation are those related to development of polymer electrolyte membrane fuel cell technology viz. the oxygen reduction reaction, hydrogen reaction, and oxidation of carbon monoxide. By focusing on the mechanism of action, we demonstrate that the ability to make a controlled and well-characterized arrangement of surface atoms presages a new era of advances in our knowledge of the electrochemical reactions.

**Fritz A Henn**

***Title: Biology and Energy Self Sufficiency***

To achieve energy self sufficiency we will need to use a variety of energy sources, one of the currently most active areas is biofuels. The area of biofuels, especially ethanol produced from corn has become a major effort in the Midwest and in research efforts, This involves breaking down the starch in corn to sugars and fermenting these to ethanol. Currently this is an energy intensive process which can be improved through genetically altering the structure of the corn and finding enzymatic methods for breaking down starch without the use of pressure and heat. In addition modifications which increase yield are also being developed. The problems associated with this source of energy have to do with the increases in the cost of food production, the available crop land suitable for corn and the water needs to grow this crop. Alternative approaches involve using other crops, which require less desirable land, such as switch grass or poplar trees and producing products other than ethanol such as oil. Examples of both approaches are being worked on at Brookhaven and will be discussed. The advantages are that crop land used for food will not be impacted and agricultural prices can be kept stable while creating new sources of energy and jobs.

**Mildred Dresselhaus**

***Energy Research: Forefront and Challenges***

An overview of the challenges of providing energy to an increasing global population with greater expectations for residential comforts, industrial development and transportation mobility is discussed within the constraints of present energy supply and environmental concerns. Emphasis is given to the role for basic research in addressing these challenges and for young people to advance their careers while addressing societal concerns.

**Cindy Lee**

***Title: Diatoms & Coccoliths in the Ocean: From Biomineralization to Ocean Acidification***

Human activities since the Industrial Revolution have changed our environment in several major ways. Changes in land use and fossil fuel burning associated with global industrialization have led to large increases in the atmospheric content of greenhouse gases and are now widely thought to cause global warming. There is mounting evidence that increased oceanic CO<sub>2</sub> concentrations lower the saturation state of seawater with respect to carbonate minerals, cause "ocean acidification", and negatively impact calcification. Evidence for ocean acidification will be presented and effects on calcareous organisms will be discussed.

**Minghua Zhang**

***Title: Simulation of Future Climate Changes Caused by Different Uses of Energy***

I will describe how future scenarios of energy use map to concentrations of greenhouse gases in the atmosphere. I will then discuss projected future climate changes calculated from coupled atmosphere-ocean-land-ice models forced by these gases. I will also highlight both the certainties and uncertainties of these projected climate changes. The presentation ends with discussions of the implication of these changes.

**Guodong Sun**

***Title: Advanced Coal Technologies for a Carbon-constrained World***

Coal provided about one quarter of total commercial energy consumption in the world in 2004. This share will remain relatively stable in the next two decades, and coal will continue to be a significant part in foreseeable future because of its abundance and low cost, particularly in major energy consuming countries including the United States, China, and India. Coal, however, is the most carbon-intensive fossil fuel. Carbon dioxide (CO<sub>2</sub>) emissions associated with coal use, which is projected to increase by 60 percent from 2002 to 2025, have to be reduced in any credible climate change policy. How to fuel a carbon-conscious or carbon-constrained world with coal? What are the appropriate technologies? What are the key factors that affect their research, development, demonstration, and early deployment? And, what business and government strategies are needed to facilitate this innovation process? This talk will review and compare the leading technical candidates for future coal-fueled power plants. They include gasification-based technologies (integrated gasification combined cycle or IGCC, poly-generation, biomass-coal co-gasification), combustion-based technologies (oxy-fuel, etc), and their carbon capture and storage (CCS) technologies. They will be compared with renewable energies on criteria including resource, cost, and environmental impacts. This talk will also assess the innovation needs of major advanced coal technologies (ACTs) that are at various stages of the innovation process.

**Devinder Mahajan**

***Title :The Biorefinery Concept: Its emergence and application on Long Island***

The biomass based fuels are considered CO<sub>2</sub>-net neutral and the theme that incorporates these is taking a new dimension. Termed "Biorefinery", the theme incorporates transportation and utilities, the two major energy consuming sectors but steam, power, production of biodegradable materials such as plastics and other chemicals is also the focus. The concept is attractive- it addresses the "infrastructure" issue, one of the costliest elements needed for implementation of any new technology. But challenges remain- among these are: 1) region specific feedstocks and 2) total carbon utiliza-

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tion of feedstocks. A workable strategy envisions progressive substitution with biofuels while designing processes to adapt to the next-generation fuel production technologies. The role of institutions for R&D, utilities and other energy industries on Long Island in addressing the global energy crisis will be discussed.

**Sijia Zhao, Kenny Kao, Yuan Sun, and Miriam Rafailovich**

***The Use of Nanoparticles to Enhance Fuel Cell Output***

We have deposited monolayer films of Au thiol nanoparticles on fuel cell membranes, using the Langmuir-Blodgett method. Results show that the maximum power output of a standard PEM increased by nearly a factor of three. The maximum output was reached when a monolayer was produced and decreased rapidly when multilayers were plated. The importance of metal polymer contacts in ion conductivity will be presented.

**Kalle Levon**

***Title: Organic Electronics in Energy Applications***

Electrically conducting polymers are being introduced today to various energy applications due to their processability and stability among other advantageous properties. Organic electronics are attractive as they can be gravure, flexo- and ink jet printed on flexible surfaces from high concentration colloidal solutions. These polymeric materials are semiconductors with good ohmic contact property and also act as excellent ion-to-electron transducers. We shall review the use of organic electronics in flat panel displays, thin film batteries, solar cells and other potential applications.

**Hazem Tawfik**

***Title: Metallic Bipolar Plates for Hydrogen, Methanol, and Ethanol PEM Fuel Cells***

Across the United States and around the globe, growing recognition of hydrogen's potential as a fuel has increased hydrogen research, development, and demonstration activities. The theoretical efficiency of fuel cell is higher than the internal combustion engine that represents the main source of energy for today's transportation vehicles. In a Polymer Electrolyte Membrane (PEM) fuel cell, the power output is influenced by the bipolar plate's material. The Interfacial Contact Resistance (ICR) between the Gas Diffusion Layer (GDL) and the bipolar plate material shows a significant effect on the electric power output from the fuel cell as the present study demonstrates. Furthermore, high corrosion resistance represents an important property of the bipolar plates to avoid the poisoning of the catalyst and/or the electrolyte and jeopardizing both the catalytic efficiency and the ionomer conductivity. The hydrogen fuel cell research and education center at the institute for research and technology transfer (IRTT) has developed and patented a highly conductive corrosion resistant coating for lightweight metallic bipolar plates. In this study the coating was also tested for corrosion resistance. In addition, coated aluminum bipolar plates were tested for 1000 hrs under cyclic loading and was compared against graphite composite plates. The aluminum coated plates' performance exhibited superior performance in relation to the composite graphite with no indication of power degradation due to corrosion. It was noted that 24% savings in hydrogen consumption is attributed to the low interfacial contact resistance of the IRTT's coating material.

**Jin Wang**

***Title: Visualizing High-Pressure Diesel and Biodiesel Sprays with Single-Shot Ultrafast X-ray Phase Contrast Imaging***

Liquid fuel sprays are part of energy sources for propulsion and transportation systems including internal combustion engines, where liquid

breakup and atomization is the first and crucial step for combustion. Despite their longstanding multitude of uses, the fundamental physics that governs the spray formation in high-speed jets is not well understood. More importantly, the U.S. is likely to utilize alternative fuels, such as biodiesel from non-petroleum and renewable sources after traditional fuels (gasoline, diesel) are exhausted and before hydrogen can be utilized. The precombustion properties of biofuel sprays command systematic studies to design efficient injection systems. The physical breakup mechanism of high-pressure high-speed liquid fuel jets has remained largely unknown due to the dearth of experimental methods for effectively probing the in-nozzle flow and the liquid jets near the nozzle exit, and to the lack of realistic multiphase hydrodynamic models. With high-brilliance x-ray beams available at the Advanced Photon Source (APS), ultrafast x-radiography and phase-contrast imaging were developed] as a unique technique to visualize the internal structure of high-pressure sprays through dense droplets surrounding the liquid jet. Here, high-pressure diesel and biodiesel sprays have been visualized, for the first time, with an unprecedented temporal (<150 ps) and spatial resolution (< 5  $\mu$ m), in the optically opaque near-nozzle region. The details include direct visualization of cavitations and their implosion, liquid filaments, microjet formation, that are of great significance for understanding the fundamental principle in liquid breakup phenomena. The diesel and biodiesel sprays can be now visualized and compared, for the first time, as a function of their viscosities. In addition, we demonstrate that the sprays from orifices with slightly different geometry exhibit drastically different morphology. These results should contribute to the understanding of breakup of high-pressure, high-speed liquid fuel jet and to spray and combustion simulations. (This work has been performed in collaboration with Kyoungsu Im, Kamel Fezzaa, Yujie Wang, Wah Keat Lee of the APS, Xingbin Xie, Ming-Chia Lai of Wayne State University. This work and the use of the Advanced Photon Source are supported by the U. S. Department of Energy, Office of Science, Office of Basic Energy Sciences, under Contract No. DE-AC02-06CH11357)

**David Nelson**

***Title: Opportunities in Condensed Matter and Materials Research***

Abstract: Among the many research and education frontiers that the National Science Foundation's programs address are specific areas of overall importance to the Nation. Basic science issues that drive innovation in energy related areas are among those supported. An overview will be provided for major activities supported by the Division of Materials Research with an emphasis on current funding opportunities.

**Lev Neymotin**

***Title: Nuclear Energy - Alternative Energy Source?***

After more than 50 years of existence, nuclear electrical power generation is gaining considerable attention in the US and in other countries as one of the sources of electricity both for industrial and household consumption. The general tendency is to use it for augmenting, and eventually replacing such sources as coal, gas, and oil - the major producers of CO<sub>2</sub> and environmental pollution. A brief review of the basics and status of nuclear power production in the world and associated issues related to technology, economics, operational safety, and nuclear nonproliferation is presented.



## Speaker Biographies

### **Anthony F. Altmann**

*Founder and CEO, International Renewables Group, LLC (IRG)*

Mr. Altmann currently serves as CEO of IRG which is an active developer of commercially viable renewable energy projects. IRG focuses heavily on solar PV for large commercial customers such as data centers and has over \$50M of projects in development. Mr. Altman is past President, FPL Group's \$3 billion Energy Marketing & Trading Division where he managed commercial aspects for one of the largest US energy portfolios (22,000 MW - 14 states) including substantial renewable energy assets (Wind, Biomass, Hydro, Geothermal and Solar). Mr. Altman is also a past President, Chief Executive and Board Member for public integrated gas company which led a team that took Allegheny & Western (NASDAQ) from \$8 million to \$350 million. He also launched one of the first power marketing companies with KEYSpan. Mr. Altman received an MBA in Finance from Columbia and a BA in Economics from Boston College.

### **Amit Bandyopadhyay**

*Distinguished Service Professor & Chair, Department of Architecture and Construction Management, Farmingdale State College*

Amit Bandyopadhyay is a registered professional engineer with over twenty six years of experience in engineering, construction, teaching, academic administration, and research. He received a Bachelor of Engineering (Civil) from the University of Calcutta, India in 1975; a Master of Science in Civil Engineering (1987) and a Doctor of Philosophy in Civil Engineering (1991) at Penn State University, University Park, PA. Amit is a Registered Professional Engineer in the State of New York and the State of New Jersey. Amit is a Professor and the Chairman for the Department of Arch./Construction Eng Management Tech at the State University of New York, Farmingdale, NY since 1997. His industrial work experience and expertise includes design and management of construction of heavy industrial and building structures; design and construction of nuclear supporting structures; craft interface, walkdown, resolution of construction problems, liaison with turnover group; supervision and coordination of different discipline engineers and designers as lead building engineer; site supervision, scheduling, cost and sub-contracts management; and management of human resources including recruitment, training, evaluations, and developments.

### **Peter Caradonna**

*Peter Caradonna Architecture and Planning, P.C., LEED Accredited Professional, Principal-In-Charge*

Peter Caradonna has been a Registered Architect since 1989 and Principal of Peter Caradonna Architecture and Planning since 1996. He provides the firm with diverse architectural experience and knowledge. His expertise spans civil and structural design, sustainable and green building guidelines, and schematic energy analysis. He received his Bachelor of Architecture in 1987 from the New York Institute of Technology, and later returned to his alma mater to teach future architects. His interest in architecture was fostered at an early age while working in his family's engineering firm. There he was exposed to all aspects of the development of construction drawings and methods of construction. In 1989, Mr. Caradonna joined the firm of John Ciardullo Assoc. in New York. Since opening Peter Caradonna Architecture and Planning in 1996, Mr. Caradonna has contracted work on varied projects including a \$180 million 37-story Hotel and 10-acre convention complex in South Portland, Maine. The firm has also been contracted to design a 20-unit housing complex for employees of the Renaissance Technologies Inc. In addition the firm is working on the Setauket Firehouse, the Laurel Hill School in Setauket, the Suffolk County Environmental and Interpretive Center in Islip and the Clarkstown Environmental Center in West Nyack. All four projects are being designed using the US Green Building Council's LEED Green Building Rating System. In addition, Mr. Caradonna lectures and teaches high-performance and green building technology throughout

the country. Through his environmental stewardship, Mr. Caradonna has developed a philosophy that seeks to reward economic, social and environmental needs when developing and designing projects. Since 2000 he has guided the firm in good standing membership with the US Green Building Council, and he was the first LEED Accredited Professional on Long Island. He is the founder and past chair of the US Green Building Council's Long Island Chapter.

### **Bill Chaleff**

*Architect, Chaleff & Rogers Architects*

A long time advocate of "Green" architecture, affordable housing and sustainable planning and design, Bill Chaleff has designed over 300 energy-efficient buildings since he began his practice on Long Island in 1974. These solar and underground structures – the first on Long Island – have been built using state of the art construction methods and materials, and have integrated thermal system engineering with structural engineering and architectural design. Bill is the developer of air-floor construction, which has been integrated into over 150 buildings over a period of 30 years. His firm won a New York State engineering award for their Tuckahoe School addition. Bill has been guest lecturer at U.C. Berkeley and at R.I.S.D. and New York Tech Architectural Schools. He has also taught architecture at the Hampton Day School and was adjunct professor at L.I.U. Southampton. He has been retained by the Structural Insulated Panel industry and the A.I.A. to run several workshops across the country on construction with Structural Insulated Panels. Bill is a LEED Accredited Professional since 2003. Additionally, Bill continues to be active in working with his local Townships on affordable housing and planning issues so as to reduce our energy expenditures, strengthen community by increasing economic and cultural diversity, and further the regenerative restoration of the unbuilt landscape.

### **Steven Cohen**

*Yazaki Energy Systems*

Steven Cohen holds a B.S. degree in Aerospace Engineering and is in his final year of work towards an MBA. He has worked as a design engineer on the Stealth Bomber, A-7 Corsair Strikefighter, Grumman X-29, and F-14 Tomcat. During the downturn in the Aerospace industry which occurred shortly after the Reagan administration, Steven Cohen converted his skills into building design. He first worked as a project manager in New York City coordinating building construction between different trades. He has been working with building energy engineering designs and absorption chiller technology for the past ten years. Steven Cohen has been with Yazaki Energy Systems for four years. Some of his most recent projects include the Manhattan House (1,600 Ton Chiller Plant), Con Edison Hawthorne Plant (200 Ton Chiller Plant), NY Foundling Hospital (300 Ton Chiller Plant), East Wind Inn and Caterers (300 Ton Chiller Plant, Wading River), Parkwest High School (200 Ton Chiller Plant), UCP (600 Ton Chiller Plant), Haybarn Park (160 Ton Chiller Plant), Green Building Design, Oyster Bay), 4C Foods (Cogeneration Plant), Jewish Home for the Aged (Cogeneration Plant), Shoprite (Cogeneration Plant), Hudson Valley Community College (Cogeneration Plant).

### **Yelleshpur Dathatri**

*Distinguished Service Professor, Farmingdale State College*

Yelleshpur Dathatri is the Director of the Solar Energy Center at Farmingdale State College in Farmingdale, NY. He is also a Distinguished Service Professor of Electrical Engineering Technology at Farmingdale. He is a member of IEEE, Society Education and Society on Industrial Applications. He also holds a P.E. license in the state of New York. He holds a M.S. Power Systems Engineering (1972) and a B.S. Electrical Engineering (1970) from Bangalore University, Bangalore India. He also holds a M.S. Industrial Management (1986) from Stony Brook University.

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**Paul A. DeCotis**

*Director of Energy Analysis, New York State Energy Research and Development Authority (NYSERDA)*

Paul DeCotis oversees energy planning and analysis, including corporate strategic planning, energy demand and price forecasting, energy and R&D program evaluation, energy emergency planning and response, and nuclear policy coordination. Prior to joining NYSERDA, Paul was Chief of Policy Analysis at the New York State Energy Office. Paul is President of a management consulting practice specializing in strategy and planning, executive and Board development, and mediation. Paul is Board Chair of the Association of Energy Service Professionals (AESP); member of the Board on Energy and Environmental Systems (BEES) of the National Academies; Executive Committee member of the Clean Energy States Alliance (CESA); Advisory Board member of the Center for Energy and Natural Resource Development for the American University at Kosovo; member of the Energy Working Group of the Coalition of Northeastern Governors (CONEG); Advisory Board member of the Sage College Graduate Management Program. Paul is an adjunct faculty member in the MBA Program at the Sage Graduate School and in the Public Policy Department at Rochester Institute of Technology (RIT), and formerly at the School of Industrial and Labor Relations at Cornell University. Paul has a B.S. in International Business Management from the University of New York College at Brockport; M.A. in Economics from the University at Albany; and M.B.A. in Finance and Management Studies from Russell Sage College.

**Miriam K. Deitsch**

*Distinguished Teaching Professor, Chair, Sociology and Anthropology and Director, Center for Social Science Research, Farmingdale State College*

Dr Deitsch is the first woman at Farmingdale State to be promoted to the rank of Distinguished Professor. Earning her Ph.D. from New York University, she has served the campus for the last thirty years in many capacities, currently as Chair of the Department of Sociology and Anthropology and as Director of the Center for Social Science Research which Dr. Deitsch opened in 2003. Recently, under Dr. Deitsch's direction, the Center for Social Science Research has been addressing the critical areas of energy independence, energy educational programs, and the promotion of ("green") alternative energies. Dr. Deitsch serves as liaison to Congressman Israel for the Next Generation Energy Security Task Force and has worked with the New York State Energy Research Development Authority (NYSERDA) in planning the New York State Green Building Summit featuring Governor Spitzer and Congressman Israel which was held at Farmingdale on October 15th, 2007. Last spring, Dr. Deitsch accepted an appointment to co-chair the Community Outreach Committee of the Advanced Energy Research and Technology Center of SUNY Stony Brook. Dr. Deitsch is a member of Farmingdale's Institutional Review Board and is engaged in research concerning the correlates of volunteerism. Dr. Deitsch's achievements were recognized in 1997 when she received the Chancellor's Award for Excellence in Teaching from the State University of New York; in 2000 with the American Heart Association's Volunteer of the Year Award; in 2003 when she was named Woman of the Year in Education by the Long Island Center for Business and Professional Women, and in 2007, when she received the James Dowling Award for Outstanding Service to the American Heart Association.

**Christine Donovan**

*Executive Vice President/Executive Director, New York Solar Energy Industries Association*

Ms. Donovan joined NYSEIA in January 2006. She has worked in the renewable energy industry since 1980 and served as Chair of the

American Solar Energy Society, Chair of the Northeast Sustainable Energy Association, Chair of the Maine Solar Energy Association and was a 10-year member of the Vermont Energy Investment Corporation Board of Directors, founders of the first energy efficiency utility in the U.S. Ms. Donovan is founder and President of C.T. Donovan Associates, Inc., a renewable energy consulting firm with clients nationwide. Ms. Donovan has researched, analyzed, and reported on key renewable energy commercialization, deployment, policy, and regulatory issues in New York State for NYSERDA, Niagara Mohawk, HYDRA-CO, and other private energy development companies. She co-directed the Renewable Energy portion of the two-year long analysis of the potential for energy efficiency and renewable energy resources in New York State to offset fossil-fuel generation funded by NYSERDA and published in 2003. Ms. Donovan is recognized for her technical expertise in solar and biomass energy technologies, her public policy and regulatory "savvy," and her outreach and communication skills. She has written and co-authored more than 100 technical and economic assessments of renewable energy technologies in the Northeast for a diverse range of public and private sector clients. Ms. Donovan was the first woman selected nationally as a distinguished Fellow of the American Solar Energy Society. She speaks and writes frequently on pressing energy, environmental, and economic development issues in our region.

**Mildred Dresselhaus**

*Institute Professor of Electrical Engineering and Physics, MIT*

Mildred Dresselhaus is an Institute Professor of Electrical Engineering and Physics at MIT. Her research over the years has covered a wide range of topics in Condensed Matter and Materials Physics and she is best known for her work on carbon science and many areas of nanoscience including carbon nanotubes, graphene, and nanowires. Her energy-related research has been on nanostructures relevant to low dimensional thermoelectricity and hydrogen-related studies. She co-chaired a DOE Study on "Basic Research Needs for the Hydrogen Economy" in 2003 and more recently co-chaired of a National Academy Decadal Study of Condensed Matter and Materials Physics. She served as Director of the US Department of Energy's Office of Science toward the end of the Clinton Administration. Professor Dresselhaus is a member of the National Academy of Sciences, the National Academy of Engineering, and has served as President of the American Physical Society, Treasurer of the National Academy of Sciences, President of the American Association for the Advancement of Science (AAAS), and on numerous advisory committees and councils. Dr. Dresselhaus has received numerous awards, including the US National Medal of Science and 24 honorary doctorates. In February she was named the North American Laureate for the 2007 L'Oreal-UNESCO Award for Women in Science.

**Steve Eber**

*Vice President of Project Development Services, KeySpan Services Inc.*

Mr. Eber has supervisory and day-to-day responsibility for developing and implementing energy projects including combined heat and power, photovoltaic power, fuel cell, alternative energy, thermal plants, and energy efficiency programs. He is very involved with strategic development of KeySpan's Green Program Initiative, and is currently running their Rooftop Green-Up Program, including installation of Photovoltaics on their properties. Steve has a BS in Mechanical Engineering from Rensselaer Polytechnic Institute in Troy, New York, a Masters Degree in Mechanical Engineering from Manhattan College in Bronx, NY, is a Registered Professional Engineer in New York State, and Member of American Society of Mechanical Engineers, and American Association of Energy Engineers. Steve is a firm believer in holistic design approaches to the built environment, and offers his twenty-five years of energy experience as part of his company's integrated approach to building design.

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**Serdar Z. Elgun**

*Mechanical Engineering Technology Department,  
Farmingdale State College*

Serdar Z. Elgun received his B.S. degree in Mechanical Engineering from the Aegean University of Izmir, Turkey, in 1977, and the M.S. degree in Mechanical Engineering from Mississippi State University in 1981 where he worked on "Thermal Gradient Solar Pond" project funded by Tennessee Valley Authority (TVA). Between 1981 and 1982 he attended the graduate program in New Mexico State University and worked on "Off Peak Thermal Storage of Solar Energy" project. Between 1992 and 1996 he also attended the graduate program of Material Science Engineering department at Stony Brook. In 1982 he joined the Mechanical Engineering Technology department of Farmingdale State College. Currently he is a professor at Farmingdale State College of New York serving as a Department Chair since 2005. He is an active member of the Farmingdale Solar Energy Center serving in various capacities since its inception in 2000. He is a member of the American Society of Mechanical Engineers (ASME) and American Society of Engineering Education (ASEE).

**David L. Ferguson**

*Department of Technology and Society, College of Engineering and  
Applied Sciences, Stony Brook University*

Dr. David L. Ferguson is Distinguished Service Professor of Technology and Society and Applied Mathematics at Stony Brook University. He is Chair of the Department of Technology and Society in the College of Engineering and Applied Sciences. Dr. Ferguson has been P.I. or Co-P.I. on numerous projects, including several NSF projects, aimed at improving undergraduate and graduate education in science, technology, engineering and mathematics (STEM). He is faculty contributor in the calculus reform movement. He co-directed the NSF-supported Algorithm Discovery Development Project and two NSF-funded Faculty Enhancement workshops on the teaching of introductory computer science courses. Under support from the Sloan Foundation, he developed a course in applications of mathematics for liberal arts students. He was Co-P.I. on a multi-campus project, funded by NSF, on Mathematical Sciences and Their Applications Throughout the Curriculum. He is coordinator for the Math and Computer Science cluster of Science Education for New Civic Engagement and Responsibility (SENCER), an NSF-funded National Dissemination grant. He was Co-P.I. on a project entitled "Real-time Multidimensional Assessment of Student Learning" funded by NSF's Program in the Assessment of Student Achievement in Undergraduate Education. Also, he was Co-P.I. on a project on Innovative Approaches to Human-Computer Interfaces, funded by the Combined Research and Curriculum Development Program of NSF. Professor Ferguson is Director of the NSF-funded SUNY LSAMP and SUNY AGEP programs. His research includes quantitative modeling, problem solving, educational technologies, and decision making. His awards include the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAEMEM), the Archie Lacey Award of the New York Academy of Sciences, and the Engineering Educator Award of the Joint Committee on Engineering of Long Island.

**Adele Ferranti**

*Senior Project Manager, NYSERDA*

Adele Ferranti is a Sr. Project Manager with NYSERDA. She has been a Project Manager in NYSERDA's R&D group for over 15 years. Currently, she manages a \$28 million portfolio of photovoltaic programs and initiatives designed to build a market infrastructure in New York. She manages the PV incentive program and many of the renewable energy workforce development initiatives at NYSERDA. Adele has a B.S. in Biology from SUNY Geneseo, M.S. in Environmental Science from SUNY School of Environmental Science and Forestry, and a Master of Public Administration from the Maxwell School of Citizenship and Public Affairs, Syracuse University.

**Adam A. Filios**

*Assistant Professor, Farmingdale State College*

Adam A. Filios received the B.Sc. degree in Physics from the University of Athens, Greece, in 1991, and the M.S.E and Ph.D. degrees in Electrical Engineering from the University of North Carolina at Charlotte, in 1994 and 1999 respectively. From 1998 he served as an assistant professor of Engineering at Johnson C. Smith University in North Carolina for two academic years, where he taught engineering courses and conducted research in optoelectronic devices. In 2000 he joined Corning's Photonics Research and Test Center in Somerset NJ, working in the research and development of novel nanoscale optoelectronic devices, optical communication systems and optical fibers. From 2002 to 2006 he was a senior research engineer with Nanodynamics Inc., in New York, where he worked on wide-bandgap materials, silicon photonics, and nanoscale integrated systems. Currently he is an assistant professor at Farmingdale State College of New York (SUNY). He is a member of the Institute of Electrical and Electronics Engineers (IEEE) and a past member of the American Physical Society (APS), the Optical Society of America (OSA), and the Materials Research Society (MRS).

**Beth Fiteni**

*Program Director, Neighborhood Network*

Beth Fiteni is the Program Director for the Neighborhood Network. She coordinates the Neighborhood Network's Clean Energy Leadership Task Force, which brings together local municipalities (towns & counties) in an effort to identify cost effective ways to implement use of clean energy technologies. As a result of the Task Force, 6 municipalities have adopted an Energy Star code for new homes, and 9 municipalities have passed Clean Energy Action Plans, resulting in solar panels on municipal buildings, use of biodiesel, purchasing hybrids, etc. She participated in the Windworks coalition along with other environmental groups and the region's utility to raise awareness about the proposed offshore wind project. She is a trainee of the national group the Greenhouse Network, and has offered a power point presentation entitled "Global Warming and its Local Solutions" to over 30 organizations around LI. She has coordinated the region's first annual Organic Turf Trade Show for landscapers for the last seven years, and compiles the Long Island's Certified List of Organic Landscapers who provide chemical-free services, as part of Neighborhood Network's Organic Landscaper Listing Program. She has worked as an environmentalist since age 18, and prior to Neighborhood Network, she worked at the National Coalition Against the Misuse of Pesticides (now "Beyond Pesticides") in Washington DC. She holds a Masters of Studies in Environmental Law from Vermont Law School, and a B.A. in Environmental Studies from Connecticut College. She serves as on the Boards of Prevention is the Cure and Friends of Huntington Farmlands, (and formerly Vision Long Island), and is an advisor to Healthy Planet.

**Charles M. Fortman**

*Associate Professor of Material Science, Stony Brook University*

Dr. Fortman received his Ph.D. from Stamford in 1985. He is a specialist of photovoltaic solar electric generation technology and science, and has worked in the photovoltaic industry and in academia. He has carried out research on crystal silicon, cadmium telluride, and amorphous silicon solar cells, and developed textured light trapping surface for crystal silicon solar cells, hot-wall vacuum deposited CdTe materials and solar cells, high efficiency thin film amorphous silicon-alloy solar cells at Solarex Thin Film Division, and developed robust substrate materials for use with less expensive, more reactive source gases. Dr. Fortmann contributed to: high efficiency very high frequency amorphous silicon solar cells, high efficiency amorphous silicon-germanium solar cells, and developed photonic amorphous materials. Dr. Fortmann has described: the thermodynamics of defect formation in amorphous materials, the relation between hydrogen content and the amorphous silicon band gap, and more recently the structural basis of neural transport.



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**Doon Gibbs**

*Deputy Director for Science and Technology*

Doon Gibbs obtained his B.A. in physics and mathematics from the University of Utah in 1977, and his Ph. D. in physics from the University of Illinois at Urbana-Champaign in 1982. He joined Brookhaven National Laboratory (BNL) in 1983 as an Assistant Physicist in the X-ray Scattering Group and has been at BNL ever since. During this time, he has served as the Group Leader of X-Ray Scattering, Associate and Deputy Chair of the Physics Department, Head of Condensed Matter Physics, and Associate Laboratory Director for Basic Energy Sciences, responsible for BNL's materials-, chemical- and nano- sciences programs. He recently became the Deputy Director for Science and Technology overseeing BNL's broad science and technology portfolio. His research interests include the structure and phase behavior of magnetic materials and of thin films and interfaces. He is a Fellow of the APS and AAAS and previous winner of the APS Compton Award, the IOP EP Wohlfarth Award, and the DOE Outstanding Scientific Accomplishment Award for his work in x-ray magnetic scattering studies of the structure and phase behavior of rare earth metals.

**James F. Groelinger**

*President, Energy Photovoltaics, Inc*

Mr. James F. Groelinger is President of Energy Photovoltaics, Inc., a leading clean technology company that designs, manufactures, and sells amorphous silicon ("a-Si") thin-film photovoltaic ("PV") modules to customers in a variety of end-markets. Immediately prior to his tenure at EPV, Mr. Groelinger was Senior Vice President for business development for CHI Energy, Inc., a Stamford, CT-based renewable energy company. Previously, as a director of Putnam, Hayes & Bartlett, Inc., an international energy strategy firm, Mr. Groelinger was involved in numerous activities related to electric industry restructuring around the world. Mr. Groelinger was the last VP-Finance of, the U.S. Synthetic Fuels Corporation where he structured and negotiated financial guarantee packages for the development of commercial synthetic fuels technologies. Mr. Groelinger started his career as a process engineer for Monsanto Chemical Company. He has a BChE from City College of New York and an MBA-Finance from Temple University.

**Fritz A Henn**

*Senior Scientist and Associate Laboratory Director for Life Sciences, Brookhaven National Laboratory*

Dr. Henn is the Senior Scientist and Associate Laboratory Director for Life Sciences, Brookhaven National Laboratory, Upton, New York. Prior to this position, he was Senior Professor, University of Heidelberg, Germany (Special Counsel Position) and Professor of Psychiatry, University of Heidelberg, Director, Dept. of Psychiatry and Director of the Central Institute of Mental Health, Mannheim, Germany. He was also the Director of the Long Island Research Institute at the New York State Office of Mental Health at Stony Brook, Health Science Center, School of Medicine, Stony Brook, New York. Dr. Henn received a Ph.D. in Biochemistry/Biophysics from the Johns Hopkins University, Baltimore, MD (1967) and an MD from the University of Virginia (1971). He has numerous publications.

**Marjaneh Issapour**

*Professor, Department of Electrical/Computer Engineering Technology and Director of INSTEP (Cisco Networking Academy), Farmingdale State College*

Marj received her BE, Electrical Engineering/Minor Applied Mathematics & Statistics from the State University of New York at Stony Brook (1984). She is Certified NetWare Administrator (CNA), a Cisco Certified Network Associate (CCNA), a Cisco Certified Academy Instructor (CCAI) and received her Professional Engineering License, State of New York (P.E.) in 2007. Marj is a member of ASEE, NYSETA, Society of Women Engineers, and American Association of University Women.

**Ralph James**

*Brookhaven National Laboratory*

Dr. Ralph James completed his Ph.D. degree in Applied Physics from Caltech in 1981. He was a Eugene P. Wigner Fellow at Oak Ridge National Laboratory from 1981-84. He then moved to Sandia where he held an appointment as Distinguished Member of the Technical Staff until 2001. Currently Ralph is the Associate Laboratory Director for Energy, Environment and National Security with the U.S. Department of Energy's Brookhaven National Laboratory. Since September 11th he has also chaired Brookhaven's Counter-terrorism Working Group, which is conceptualizing and coordinating efforts to develop technologies that can fight biological, chemical and nuclear terrorism. Dr. James has authored over 300 scientific publications, edited 11 books, and holds 11 patents. He is the recipient of numerous scientific honors including Discover Magazine's "Innovator of the Year" award. He is a three-time winner of R&D Magazine's "R&D 100" awards, which recognizes the top 100 technical inventions of the year. Ralph is a Fellow of the International Society for Optical Engineering (SPIE) for his research in nonlinear optics, Fellow of the American Physical Society (APS) for his studies of wide band-gap semiconductors and Fellow of the Institute for Electrical and Electronic Engineers (IEEE) for his contributions to develop semiconductor radiation sensors. Ralph has played a leadership role to bring the scientific community together, having chaired over 15 international conferences.

**W. Hubert Keen**

*President, Farmingdale State College*

Dr. W. Hubert Keen was appointed president of Farmingdale State College—SUNY on January 11, 2007. His extensive experience in higher education includes serving as Special Assistant to the System Provost in the State University of New York, where he founded the SUNY Urban Teacher Education Center. He served as provost at York College—CUNY and Farmingdale State, as well as interim president at SUNY Old Westbury. In 1976, he began his career in SUNY as Assistant Professor of Biological Science at Cortland where he subsequently served as Associate Professor and Professor, and in 1988 he was named Dean of Arts and Sciences. His teaching and research areas are in ecology, environmental science, evolutionary biology, aquatic biology and biostatistics. His research has been supported by the National Science Foundation and other agencies and has yielded over twenty refereed papers in the areas of population biology and behavioral ecology. A Fulbright Fellow, Dr. Keen is also the author of biographies of prominent figures in science, technology and education as well as articles on higher education. Dr. Keen earned the BA in Biology from Pikeville College, the MS in Physiological Ecology from Eastern Kentucky University and the PhD from Kent State University in Ecology.

**Mar Kelly**

*Renewable Energy Consultant*

Mar combined her technical skills as an environmental scientist and business skills to contract, design and commission over 75 residential and commercial PV systems. Mar has over 18 years experience in the environmental and solar contracting field. She has worked extensively with Fortune 500 clients and institutional investors. She is viewed as an industry leader by peers and clients based on project histories and ability to advocate and influence policies to regulators and approving agencies. Her educational background includes a B.S. in Environmental Science from Rutgers University, Cook College 1986; Executive Officer, Mid-Atlantic Solar Energy Industry Association (MSEIA) 2006; and special honor as Wall Street Journal Small Business Owner of the Year.

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**Fred Koelbel**

*President, SBGA, West Islip School District*

After spending many years in the private sector as a project manager for a design/build developer of commercial properties, Fred entered the field of K-12 facilities management in 1997. He has served the West Islip UFSD as Superintendent of Buildings and Grounds for the last 10 years. He is a former president and state director of the Suffolk County Chapter of the NYS SBGA and has just completed his term as President of the NYSSBGA. He continues to serve the state organization as its Legislative Director. He is one of two facility director representative on the Green Seal GS-37 Stakeholders Committee, working on the revision of GS-37, the Green Seal standard for All-purpose cleaners. He has assisted the NYSSD in facilities planning at the Roosevelt School District. He has testified before numerous state and local committees advocating for adequate funding for school maintenance.

**Cindy Lee**

*Marine Science Research Center, Stony Brook University*

Cindy Lee received BS degrees in Chemistry and Chemical Engineering from Arizona State University in 1970, and a PhD in chemical oceanography from the Scripps Institution of Oceanography in 1975. She then spent 11 years at the Woods Hole Oceanographic Institution working in the field of marine organic geochemistry. Since 1986 she has been on the faculty at Stony Brook University's Marine Sciences Research Center where she is a SUNY Distinguished Professor. She is a Fellow of the American Geophysical Union, a Fellow of the Geochemical Society, and is currently President of AGU's Ocean Sciences Section. She has chaired many national oceanographic committees and organizations and served as editor for numerous chemical oceanography journals. She has written over 100 papers on the distribution and behavior of biogenic organic compounds in the marine environment, in particular the rates and mechanisms of reactions that occur as these compounds undergo alteration.

**Kalle Levon**

*Professor, Polytechnic University*

Areas of Interest include Non-equilibrium Phenomena, Phase Separations in Macromolecular Systems, Gelation and Percolation, Organic Electronics, and Biosensors. Education was a M.Sc., University of Helsinki and Ph.D. Agr., University of Tokyo.

**Devinder Mahajan**

*Scientist/Group Leader, Advanced Fuels Group, Brookhaven National Laboratory; Professor and Co-Director, Chemical and Molecular Engineering (CME) Program, Stony Brook University*

Professor Mahajan holds one of the few joint appointments between Brookhaven National Laboratory and Stony Brook University. Dr. Mahajan's professional goal is to bridge science and technology. To achieve this goal, his research interests include a portfolio of projects on Methane hydrates, H<sub>2</sub> production, Fuel Cells, Fischer-Tropsch, Methanol, and mixed alcohol synthesis using soluble (single-site) or slurried (nano heterogeneous or colloidal phase) based catalysts. He has organized symposia and international workshops on issues such as Clean Fuels, Methane Hydrates, and Biomass and serves as a Guest Editor of three special volumes: *Topics in Catalysis (TIC)*, *Journal of Petroleum Science & Engineering (JOPSE)*, and *Industrial Engineering and Chemistry Research (I&ECR)*. He is the author of over 80 publications including book chapters and encyclopedia articles, 10 patents, presented over 120 invited lectures at various universities, companies, and conferences and his work is constantly covered through press releases. He serves on several national and international energy-related committees and consults for several companies and lectures on clean energy topics, nationally and internationally. In 2006, he was recognized with a membership to the prestigious Russian Academy of Natural Sciences (RANS)-US Section and is a recipient of the RANS Crown and Eagle Medal of Honor for service

to the field of "Petroleum Engineering". He is also a member of the American Institute of Chemical Engineers (AIChE), the American Chemical Society (ACS), and the New York Academy of Sciences (NYAS). As a Professor at Stony Brook, his priority is to further integrate education and research to train students in the next-generation energy technologies.

**David J. Manning**

*Executive Vice President, US External Affairs*

David is responsible for public affairs, government relations, internal and external communications, community development, corporate brand strategy and environmental policy. David joined KeySpan in 1999. Before joining KeySpan, David was president of the Canadian Association of Petroleum Producers (CAPP), a national trade association representing all significant oil and gas producers nationally and internationally. From 1993 to 1995, he was Deputy Minister of Energy for the Province of Alberta, Canada. From 1988 to 1993, he was Senior International Trade Counsel for the Government of Alberta, based in New York City. Previously he was in the private practice of law in Canada, as Queen's Council. David is past Chair, Brooklyn Chamber of Commerce, and sits on the Boards of the New York City Police Foundation, Audubon New York, Long Island Housing Partnership, Citizen Budget Commission, and the New York League of Conservation Voters. David was educated in law and has Bachelor of Arts and Bachelor of Laws degrees from the University of Alberta. He did post-graduate study in international law at Australian National University and was a Rotary Foundation Fellow. He is a member of the Law Society of Alberta, the Canadian Bar Association, and is eligible for admission to the New York Bar.

**Nenad M. Markovic**

*Material Sciences Division Argonne National Laboratory & The University of Chicago*

Nenad Markovic received a Ph.D. in Chemistry from University of Belgrade, Belgrade Yugoslavia (1984). He is a Senior Scientist, Argonne National Laboratory, Material Sciences Division, Argonne, IL. Prior to that, Nenad was a Staff Scientist at Lawrence Berkeley National Laboratory, Materials Sciences Division, in Berkeley, CA. His research interests include physical chemistry at the electrified metal-solution interfaces, development of new materials for clean energy production, energy conversion, and energy storage, synthesis and stability of metal catalysts under the reaction conditions and metal deposition.

**Mike McKeown**

*Orthodyne Electronics*

Mike McKeown has been with Orthodyne Electronics (OE), a wire bonder manufacturer, since 1997 doing sales and applications. Previous to OE, he was an applications engineer with SPM, a wire manufacturer. Mike started in the electronics industry in 1985 at Standard Motor Products in NYC as a Process Engineer designing manufacturing lines for automotive-electronic modules. He is presently working towards his Doctorate in Engineering at Leeds University and has his MBA from Jones International University.

**Andy Meserve**

*Regional Sales Director for GE Energy - Solar Technologies*

Andy Meserve is Regional Sales Director for GE Energy - Solar Technologies focused on North American sales and market development. Andy is responsible from growth in all of the major solar markets including commercial, residential and off-grid. He has been in the solar field since 2002 starting with AstroPower in a management role of the Home Depot residential program and dealer development. GE Energy purchased AstroPower in 2004 and has continued to invest in the solar electric arena. Andy is a member of the Mid-Atlantic Solar Energy Industries Association and the American Solar Energy Association and a graduate from the University of Delaware.



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**Karen Joy Miller**

*Founder and President, Huntington Breast Cancer Action Coalition*

Karen Joy Miller is founder and president of Huntington Breast Cancer Action Coalition, a grassroots community breast cancer organization in existence since 1991. She is a founding member of the New York State Breast Cancer Network and Long Island Breast Cancer Network. Currently, she serves on the New York State Breast and Cervical Cancer Education and Detection Advisory Council, and has been appointed Chair to Suffolk County's Cancer Awareness Task Force, and Chair to Working Group for Breast Cancer and Environment Research Centers, a National Institute of Environmental Health Sciences NIEHS and National Cancer Institutes (NCI) project. Karen's interest focuses on relationships between environmental exposures and disease. She's testified before Congress to secure the Long Island Breast Cancer Study Project (LIBCSP) the first environmental study on Long Island, and serves as ad-hoc advisory member to the research project. Karen was the first layperson appointed to serve on NCI's peer-review committee to select an epidemiological study project, and serves as an advisor to the Director of NIEHS under Public Interest Partners group. In 2000, initiated "Prevention Is the Cure" campaign and has been active on community, state, and federal levels to raise awareness about environmental links to disease.

**David Nelson**

*Program Director Solid State and Materials Chemistry, Division of Materials Research, National Science Foundation*

After receiving his PhD in Physical Chemistry from the University of Waterloo, Ontario, Canada, David Nelson began his professional career as a Research Fellow at Southampton University in England, and then spent two years as a visiting faculty member in the Department of Chemistry at the University of Windsor, and three years as a visiting faculty member in the Department of Chemistry at Rensselaer Polytechnic Institute, Troy, NY. In 1975, he joined the Chemistry Division of the Office of Naval Research to manage the Physical Chemistry Program and to initiate a new Solid State Chemistry Program. He also served briefly as the Acting Director of ONR's Chemistry Division before leaving in 1989 to join the Division of Materials Research at the National Science Foundation. He is currently Program Director for the NSF Solid State and Materials Chemistry Program, and he recently concluded twelve years as Coordinating Program Director for the Condensed Matter Physics, Solid State Chemistry and Polymer Programs. David has served as a member of the Advisory Boards of the ACS Journals of Analytical Chemistry and Chemistry of Materials, and the Journal of the Electrochemical Society, where he was also a Divisional Editor. He has actively participated in several Divisions of the ACS, MRS, and ECS where he has organized many symposia and served on many organizing committees. In addition, he has served as Secretary, Treasurer, and Chairman of the James Clerk Maxwell Society of the United States, and is a former Trustee of the James Clerk Maxwell Society of the UK. Publications include co-editor of four books and two patents in areas of ionic solution chemistry, high-temperature superconductivity, and cluster science.

**Lev Neymotin**

*Center for Non-Proliferation and National Security, Brookhaven National Laboratory*

Dr. Neymotin received a MS (1967) and PhD (1974) in Mechanical Engineering from the Kazakh State University at Almaty, Kazakhstan. Since then, he has done experimental work on heat transfer in liquid metals (application to fusion reactors) in St. Petersburg, Russia. Since 1979 he has been with Brookhaven National Laboratory working on various aspects of nuclear reactor safety and nonproliferation and national security.

**Gordian Raacke**

*Executive Director, Renewable Energy Long Island*

Mr. Raacke is the founder and executive director of Renewable Energy Long

Island (RELI), a 501(c)3 not-for-profit organization promoting clean and sustainable energy use and generation on Long Island. RELI is the only membership-supported organization with an exclusive focus on energy efficiency and renewable energy, working to protect Long Island's environment, economy and public health and to reduce our dependence on fossil fuels. The Long Island-based energy watchdog group was established as a result of a settlement of a class action lawsuit against the Long Island Lighting Company (LILCO) in 1989 to represent and protect the interests of Long Island's electric ratepayers. He has worked as a consultant on energy issues to the Suffolk County Legislature, participated in the development of New York State Energy Plans and in proceedings before the NY PSC including rate cases, the proceeding on restructuring electric utilities and the proceeding to establish a statewide Renewable Portfolio Standard which requires that 25% of New York State's electricity come from renewable energy sources such as wind, solar and biomass by 2013. He founded the Long Island Solar Roofs Initiative and coordinates public outreach and education efforts on solar energy in conjunction with the Long Island Power Authority's Clean Energy Initiative. He was instrumental in establishing WindWorks Long Island, a coalition of environmental groups which initiated and supports the concept of the proposed Long Island Offshore Wind Park. In 2007, Mr. Raacke was selected as a Climate Change Messenger to participate in a rigorous training program led by former Vice President Al Gore to spread the message about the threat of and solutions to global warming.

**Roy Rakobitsch**

*Go Solar Inc*

Roy Rakobitsch is currently working in the Residential Wind/PV sector. Over the last 20 years, he has amassed a vast knowledge of electronic / mechanical systems; from component level design, to system design and implementation. He also spent years in the Communications Engineering field dealing with RF system architecture and antenna design. Roy spent most of his free time over the last eleven years playing with small scale wind and PV systems, mainly focusing on complete "from scratch" wind systems, in which he custom fabricates ALL parts of the system. BOS and system integration also comes into play. Roy lived off grid on the East End for seven years so far with no plan on going back.

**Miriam Rafailovich**

*Stony Brook University*

Miriam Rafailovich obtained her PhD from Stony Brook University in Nuclear Physics. She is currently co-director in the program for chemical and molecular engineering at Stony Brook University and Director of the National Science Foundation Materials Research Science and Engineering Center.

**Gregory Dennis Sachs**

*Program Mgr & Engineering Instructor, Alternative Power Program, US Merchant Marine Academy*

Greg graduated from the US Merchant Marine Academy in 1999. He attended Navy Nuclear Power School, & over the course of four years held several management, teaching & supervisory positions as a nuclear engineer at Knolls Atomic Power Laboratory. With the intent to pursue renewable energy & sustainability, Greg left the nuclear industry & began pursuing self-guided research in this area. During this period Greg renewed his Coast Guard Engineering License & sailed "deep-sea" out of the Port of New York. Greg returned to the USMMA as an adjunct professor, initially for the purpose of assisting with various ongoing hydrogen & alternative energy projects. Greg then co-founded the USMMA Alternative Power Program, assumed the position of APP Project Manager, & was subsequently hired full-time as a member of the teaching faculty. Greg has since been promoted to APP Program Manager, whilst instructing as an electrical engineering professor. Greg is currently pursuing his Master of Science in Engineering & Management at the Massachusetts Institute of Technology.

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## **Joseph Schroeder**

*Legislature's Office of Budget Review – Energy Specialist*

Mr. Schroeder's position for Suffolk County is to advise the Legislature and County Executive on energy policy and related issues; monitor the development and deployment of new energy technologies, including renewable and high efficiency alternatives; assist in the development of legislation that encourages environmentally sound cost savings and energy conservation measures; promote inter-municipal collaboratives to secure a comprehensive energy policy for Long Island; and assist the Legislature in providing oversight of the Long Island Power Authority, including the Shoreham Settlement, finances, changes in consumer utility rates, and its energy policies. Prior to his position for Suffolk County, Mr. Schroeder was with KeySpan Energy Corporation in the Key Account Sales Department as a Senior Account Executive (Government Facilities). Mr. Schroeder received an MS in Energy Management (1995) and an Advanced Certificate in Environmental Technologies (1994) from New York Institute of Technology.

## **Yacov Shamash**

*Vice President for Economic Development & Dean of the College of Engineering and Applied Sciences, Stony Brook University*

As Vice President, Dr. Shamash supervises the University's three incubators, two New York State Centers for Advanced Technology, the Center of Excellence in Wireless and Information Technology (CEWIT), the Advanced Energy Research and Technology Center, the Small Business Development Center, and the workforce development programs of the Center for Emerging Technologies. The College of Engineering and Applied Sciences has more than 1,500 undergraduate and 900 graduate students. In 1994 he initiated the highly successful state-wide SPIR program (Strategic Partnership for Industrial Resurgence), which has partnered with more than 220 companies to assist them with more than 1,150 projects. Prior to joining SUNY Stony Brook in 1992, Dr. Shamash served as the Director of the School of Electrical Engineering and Computer Science at Washington State University and was responsible for the establishment of a National Science Foundation Industry/University Center for the Design of Analog/Digital Integrated Circuits. He is a member of the Board of Directors of Keytronic, American Medical Alert and Applied DNA. He is also a member of the Board of Directors for the Long Island Software & Technology Network (LISTnet). Dr. Shamash has also held faculty positions at Florida Atlantic University, the University of Pennsylvania and Tel Aviv University. He received his undergraduate and graduate degrees from Imperial College of Science and Technology in London, England. He has authored more than 130 publications and is a Fellow of the IEEE.

## **Randy Spitzer**

*Assistant Program Manager, LIPA*

Randy Spitzer is currently an Assistant Program Manager for the Long Island Power Authority's Clean Energy Initiative. In his role Mr. Spitzer issues policy recommendations and provides oversight of the Clean Energy Initiative's Commercial and Industrial efficiency programs. Mr. Spitzer holds a BA in Earth System Science and an MS in Energy Management with a Certificate in Energy Technology. He is also certified as a Business Energy Professional by the Association of Energy Engineers. In addition to his duties at LIPA, Mr. Spitzer serves on the Board of the United States Green Building Council's Long Island Chapter and on the Board of the Conservation Advisory Council of the Village of Port Jefferson.

## **Guodong Sun**

*Assistant Professor, Stony Brook University*

Guodong Sun is an Assistant Professor at the SUNY Stony Brook University. He applies insights and tools from engineering, natural science, economics, and management science to address policy issues in energy and environ-

mental systems, and in the innovation of large-scale and complex technological systems, with particular attention to China. His recent research includes the analysis of appropriate advanced-coal technologies for China in the context of global climate change and energy security, and assessments of innovation system for advanced energy technology. Prior to joining Stony Brook, he was a Research Fellow at the Kennedy School of Government of Harvard University. He received his doctorate in Engineering and Public Policy from Carnegie Mellon University, and his master's degree in System Engineering and baccalaureate in Thermal Turbomachinery from Tsinghua University.

## **Hazem Tawfik**

*Director of the Institute for Research and Technology Transfer (IRTT) at Farmingdale State College*

Dr. Tawfik obtained his Ph.D. in Mechanical Engineering, from University of Waterloo, Ontario, Canada, in 1980. Since then he held a number of industrial & academic positions and affiliations with a number of organizations that included Brookhaven National Laboratory (BNL), Rensselaer Polytechnic Institute (RPI), Atomic Energy of Canada Inc., Ontario Hydro, NASA Kennedy, NASA Marshall Space Flight Centers, and the U.S. Naval Surface Warfare Center at Carderock, Md. Dr. Tawfik is the author of a number of research papers, holds numerous research awards and shares the rights to two patents in the Polymer Electrolyte Membrane (PEM) hydrogen fuel cell area. Currently, he is a SUNY Distinguished Service Professor and the Director of the Institute for Research and Technology Transfer (IRTT) at Farmingdale State College – State University of New York.

## **Jin Wang**

*Advanced Photon Source, Argonne National Laboratory*

Dr. Jin Wang, Physicist and Group Leader for time-resolved research at the Advanced Photon Source (APS) of Argonne National Laboratory (ANL) earned his doctoral degree in physical chemistry from The Ohio State University, Columbus, Ohio in 1994. After so, he was appointed a post-doctoral fellow at Exxon Research and Engineering Company. He continued his research at ANL in 1995 as a post-doctoral fellow, and was promoted to assistant physicist in 1997, physicist in 2001, group leader in 2003. His research interest includes structure-function relationship of various dynamical phenomena primarily using x-ray scattering and imaging techniques. Systems being studied include structure, kinetics and dynamics of metal/polymer nanocomposites; dynamics and structure of high-pressure, high-speed fuel sprays for energy applications; interaction between high-power and short-pulse laser and solid state surfaces. Wang has co-authored or authored more than 90 journal articles publications. Wang received numerous awards, including the Best Paper Presentation Award of the ASME Internal Combustion Engine Division in 2006, the University of Chicago Distinguished Performance Award in 2005, the US Department of Energy National Laboratory R&D Award in May 2002, the Finalist, Discover Magazine Technology Innovation Awards in 2001.

## **Minghua Zhang**

*Institute for Terrestrial, Planetary and Atmospheric Science, Stony Brook University*

Professor and Director, Institute for Terrestrial and Planetary Atmospheres of the Stony Brook University; until 2003 Minghua Zhang was Assistant and Associate Professor, Stony Brook University. His professional service and/or memberships include co-Chairman of the Atmospheric Modeling Working Group of the National Center for Atmospheric Research and Cloud Parameterization and Modeling Working Group of the DOE Atmospheric Radiation Measurement Program. His research interests are climate change analysis and modeling, cloud-climate interactions, interfacing physical parameterizations of general circulation models with field experimental data.

# Advanced Energy Research and Technology Center



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