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IEEE Southeastern Michigan Section

Visit us online at http://www.ieee-sem.org or http://www.sem-ieee.org

Spring Conference

Section Conference and Dinner
April 7, 2011

IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

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SPRING CONFERENCE ANNOUNCEMENT

Once in a lifetime !

100th Anniversary

IEEE Southeastern Michigan

Electrical and Electronic Engineers Creating Our Future

Tuesday Evening
October 11, 2011

The Henry Ford Museum
Dearborn, Michigan

Web Site: http://ewh.ieee.org/r4/se_michigan/100

SEM TECHNICAL CHAPTERS

Technical Chapters of the

IEEE Southeastern Michigan Section (SEM)

http://www.ieee-sem.org

Chapter I	Signal Processing Society Circuits and Systems Society Information Theory Society
Chapter II	Vehicular Technology Society
Chapter III	Aerospace and Electronic Systems Society Communications Society
Chapter IV (Trident)	Antennas and Propagation Society Electron Devices Society Microwave Theory and Techniques Society
Chapter V	Computer Society
Chapter VI	Geoscience and Remote Sensing Society
Chapter VII	Industry Applications Society Power Engineering Society
Chapter VII	Electromagnetic Compatibility Society
Chapter IX	Industrial Electronics Society Power Electronics Society
Chapter X	Technology Management Council
Chapter XI	Engineering in Medicine and Biology Society
Chapter XII	Control Systems Society
Chapter XIII	Education Society
Chapter XIV	Robotics and Automation Society
Chapter XV	Systems, Man, and Cybernetics Society
Chapter XVI	Computational Intelligence Society
Chapter XVII	Nano Technology Council

WELCOME

Welcome to the 2010 Spring Conference of IEEE Southeastern Michigan Section, Chapters, and Student Branches. This event is sponsored by the Southeastern Michigan Section with the intent to provide a number of IEEE related opportunities.

- Chapter meetings directly sponsored and organized by 12 of the 17 technical society Chapters here in Southeastern Michigan. Each Chapter has gathered interesting speakers with compelling subjects in the technical field of interest of the related Chapter Societies. We are sure there is 'something for everyone' in this very eclectic mix of topics.
- Networking time before, between and after each Chapter presentation to catch up with old friends, and make new acquaintances. Be sure to make that extra effort to introduce yourself to someone you have not met before during one of the breaks, or before dinner. Everyone at the Conference is an 'expert' in something, and one of the most fascinating aspects of a Section wide conference is finding those interesting individuals you will meet 'for the first time' in the halls.
- Social time for Dinner with both old and new friends, and time to recognize some of our Section volunteers who have contributed so much to our success in the last year.

We will close the evening with a look into the future of the NASA space program with our keynote speaker; **Bryan Palaszewski** of the **NASA Glenn Research Center**, who will talk us through: "Advanced Propulsion Concepts and Electromagnetic Launch Systems". From Bryan's presentation abstract: "Electromagnetic launchers and accelerators have a potential niche in several important systems concepts: Earth launch to orbit, in-space transportation of large payloads and objects (asteroids, etc.), and lunar industrialization. The NASA presentation will provide an overview of the broad range of advanced concepts and focus on the important electromagnetic propulsion options within that broad context." I know many of us are looking forward to this presentation with keen anticipation.

Special thanks are due to the committee members and Section and Chapter Officers who have volunteered countless hours to organize this event including advertisements, developing the technical program, speaker arrangements, poster printing, publication of the Conference booklet, all the registration activity and the support of our Student Branch members who have been our 'on the job' helpers as well as our 'human arrows'.

Please enjoy the Conference and the presentations and take advantage of the wealth of intellectual and network resources available here today. Thank you for your attendance and for supporting the IEEE Southeastern Michigan Section. We are glad you came.

Kimball Williams
Section Chair

AGENDA

4:30 PM **Registration Opens**

Networking

Exhibits

5:00 PM **First Session Begins**

Room #120 – Chapter VI (Geoscience)

Room #121 – Chapter IX (Power/Industrial)

Room #110 – Chapter III (Aerospace)

Room #102 – Chapter I (Circuits/Signal)

Room #127 – Chapter XV (Sys/Cybernetics)

Room #117 – Chapter V (Computers)

6:00 PM **Second Session Tracks Begin**

Room #120 – Chapter VII (EMC)

Room #121 – Chapter XII (Control Sys)

Room #110 – Chapter II (Vehicle Tech)

Room #102 – Chapter I (Circuits/Signal)

Room #127 – Chapter XIV (Robotics)

Room #117 – Chapter IV (Trident/Antennas)

7:00 PM

Networking

Exhibits

7:30 pm **Dinner and Awards**

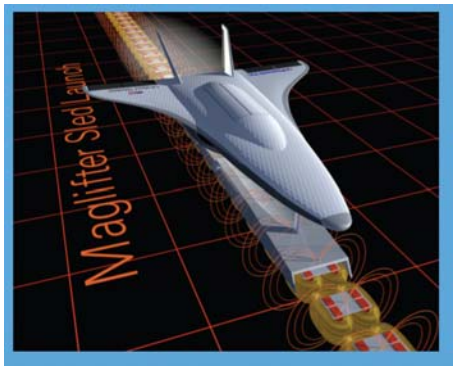
Room # Quad E

8:15 PM **Keynote Speaker:**

Room # Quad E

KEYNOTE SPEAKER

Advanced Propulsion Concepts and Electro-Magnetic Launch Systems



Bryan Palaszewski

General Manager
Business Development
NASA Glen Research Center

For over 70 years, advanced propulsion concepts studies have been conducted by worldwide propulsion research organizations. These studies and experimental programs have addressed the broad range of space propulsion systems: from near term chemical rocket improvements, to fast interplanetary flights, to interstellar exploration. These systems include electric propulsion, laser propulsion, aerodynamic braking in planetary atmospheres, in-situ use of planetary atmospheric and regolith-based resources, and nuclear propulsion options of nuclear fission, fusion and antimatter.

Electromagnetic launchers and accelerators have a potential niche in several important systems concepts: Earth launch to orbit, in-space transportation of large payloads and objects (asteroids, etc.), and lunar industrialization. The NASA presentation will provide an overview of the broad range of advanced concepts and focus on the important electromagnetic propulsion options within that broad context.

KEYNOTE SPEAKER

Bryan Palaszewski

General Manager
Business Development
NASA Glen Research Center

Bryan has worked at the NASA Glenn Research Center at Lewis Field since 1989 and is currently directing research on high performance propellants and atmospheric entry. He currently leads work related to human Mars entry, descent, and landing (EDL) where rocket deceleration is planned for the final descent to the planet's surface. He is also investigating outer planet atmospheres and the challenges and benefits of mining them for future space missions.
A recent focus of his research is in nanoparticle metal additives for gelled liquid fuels, and solid hydrogen for atomic propellants.
He recently led the Fire Prevention - Accident Mitigation aspects of the NASA /FAA Aviation Safety Program, investigating ways of making aircraft and their fuels safer.
In 1996, he led the NASA Small Business Innovation Research (SBIR) special topic for commercializing safer, denser propellants.
In 1995, he led a team to plan the testing of a 1500 pound thrust Oxygen/Hydrogen windowed rocket engine with laser-based measurements of injector and combustor mixing.
For six years, he led many studies of advanced space systems for orbital and interplanetary travel at the Jet Propulsion Laboratory, Pasadena, CA. He was also the lead propulsion subsystem engineer on the Ocean Topography Experiment (TOPEX) for three years, as well as being involved other flight projects such as the Galileo Mission to Jupiter and the Cassini Mission to Saturn.
He holds a Master of Science Degree in Mechanical Engineering from the Massachusetts Institute of Technology and a Bachelors Degree in Mechanical Engineering from the City College of New York.
He has received the AIAA Sustained Service Award in 2004, and was chair of the AIAA Nuclear and Future Flight Propulsion Technical committee for 3 years.

FLOOR PLAN / MEETING ROOMS

U of M Dearborn
Fairlane Center - North Building

Key:

- Registration
- Exhibit Tables
- Room 120
- Room 121
- Room 110
- Room 102
- Room 127
- Room 117
- Dinner & Keynote

ROOM #120

5:00 PM Smart Lakes = Great Lakes: Using Technology to Advance Resource Management

Kelli Paige
Project Coordinator
Great Lakes Observing System

The Great Lakes ecosystem, the largest freshwater system in the world, is a dynamic and complex interaction of biological, chemical and physical components that is not yet fully understood. Observing systems, including sensors, stations, networks and field data collection are the primary means for gathering information on the chemical, biological and physical characteristics of the Great Lakes ecosystem. These observations are used in a host of monitoring programs to take the pulse of the Great Lakes, assess natural variability, drive ecosystem forecasting models, and assess the progress of restorations efforts. The Great Lakes Observing System (GLOS) is a nonprofit organization established to advance the coordination of the extensive Great Lakes regional observing network of people, processes and technology that work together to maximize access to critical, real-time and historical information about the Great Lakes and St. Lawrence River system for use in managing, safeguarding and understanding these immensely valuable freshwater resources. GLOS coordinates Great Lakes observations, information technology, data delivery products, and related services by developing a broad network of members and providing a forum for collaboration and communication. Through its role as a data management facilitator, GLOS makes a broader suite of data available to scientists, resource managers, decision-makers and other data users, allowing them to develop a more complete characterization of our Great Lakes by collecting and bringing data together to be used with other data sets, in models, and in data visualization products.

Kelli Paige is the Project Coordinator for The Great Lakes Observing System (GLOS). She is originally from Chicago where she received her BA in Public Policy from DePaul University and worked as a Watershed Project Coordinator with Friends of the Chicago River. She went on to get her MS in Resource Ecology and Management from the University of Michigan and has previously worked for The Nature Conservancy as an Outreach Coordinator in Toledo, Ohio.

DINNER

Buffet Menu

Caesar Salad
Bean Salad
Rolls and Butter
Baked White Fish
Boneless Chicken Breast
Vegetable Lasagna (Vegetarian)
Whole Kernel Corn
Roast Redskin Potatoes
Apple and Cherry Pie Dessert
Coffee (Regular & Decaf)
Tea / Water / Soft Drinks

AWARDS

Speaker Recognition and Appreciation

Recognition of IEEE-USA Awards
- 2010 Professional Achievement Award
- 2010 Citation of Honor Award

2011 SEM Section Outstanding Professional Award

SPONSORSHIP

One of the issues we face at a Section Conference is how to finance our event without driving the Section budget into the red. The current contributions and sponsorship structure includes: University Showcase Table, Company Vendor Table, Student Table Sponsorship, and Patron Sponsorship. If your university or company would be interested, please contact our Director of Professional Activities, Dr. Adel Marzougui at 734-213-1240 or e-Mail at adel_mar@hotmail.com.

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Information not available by print deadline.

ROOM #120

6:00 PM ***MOM knows best… how Method of Moments can solve today's complex world problems***

Or

Math Goes Green: how the Method of Moments(MOM) is the original Green Math!

Dr. Candace Suriano
MOM Specialist
Dr. John Suriano
EMC Lab
Nidec Motors and Actuators

Come to this session to find out how the Method of Moments (MOM) is truly Green math. Method of moments is a classic numerical tool used by antenna engineers. The presenters will attempt to demonstrate that the Method of Moments (MOM) is a SIMPLE numerical technique for solving many different physical problems, particularly in electromagnetic. MOM is useful for studying systems in which the reaction of each part is dependent upon the reaction of each other part. Examples include charge distributions on objects, radiation and impedance of antennas, electromagnetic fields in dielectric or permeable materials, asteroid positions around the Millennium Falcon, and reaction of the stock market. The basics of the Moment Method will be presented with more emphasis on practical explanation than on scary equations.

Dr. CJ Candace Suriano is a graduate of GMI Engineering & Management Institute (BSME) and has graduate degrees from Purdue University (MSME, MSE) and the University of Dayton (Ph.D.). She is the author of numerous papers on electromagnetic compatibility and chaired an antennas and probes workshop at several IEEE EMC symposia. Her interests are in the areas of electromagnetic compatibility and electromagnetic modeling. Candace is a mom with interests in MOM.

Dr. John Suriano is a graduate of GMI Engineering & Management Institute (BSEE) and has graduate degrees from Purdue University (MSME, Ph.D.). He supervises an EMC laboratory for Nidec Motors and Actuators in Auburn Hills, Michigan. He has interests in electric motors and electromagnetic modeling.

ROOM #110

5:00 PM One Company's Trek for Enabling Employee Owned Smartphone's in the Enterprise

Randy Nunez
Enterprise Technology- Research
Ford Motor Company

A number of trends that are causing companies to look more closely at the use of individual-liable (employee-owned) smart phones for business purposes. This presentation will discuss Ford's journey in using employee-owned devices in the enterprise. The presentation will include reasons behind the effort, key highlights of the journey, a description of the current program, and conclude with recommendations.

Randy Nunez works in Ford's Enterprise Technology-Research organization as the technical lead for the Mobile Computing work stream, where he is responsible for researching mobile computing technology trends, executing proofs-of-concepts for technology prove-out, publishing internal technical briefs, and delivering technology presentations to all levels of IT. Randy has a BSEE with a concentration in Telecommunications

ROOM #127

6:00 PM Sustainable Manufacturing Research Challenges and Opportunities

Jorge Arinez
Staff Researcher
Manufacturing Systems Research Lab
Research and Development Center
General Motors Corporation

In the last 30 years, the automotive industry has been focused on improving the energy efficiency and performance of vehicles; however, because of increasing energy costs, it has now become just as important to increase the efficiency by which vehicles are manufactured. An essential step towards improving energy efficiency is to first identify opportunities through measurement of energy consumption followed by development and implementation of advanced technologies. This presentation will focus on the role of manufacturing research in the area of sustainability and the environment through an integrated approach to plant facilities and processes.

Jorge Arinez is currently a staff researcher in the Manufacturing Systems Research Lab at the General Motors R&D Center. His research interests include the real-time monitoring, control, and quality of manufacturing systems with a focus on energy efficiency of plant operations.

ROOM #127

5:00 PM Low Energy Routing, Distance to Empty and Green Planning for Battery Electric Vehicle

Perry MacNeille

Research Engineer
Vehicle Design and Infotronics
Research and Advanced Engineering
Ford Motor Company

Mr. MacNeille's presentation discusses application concepts for solving the problems of range anxiety, green routing and green planning for battery electric vehicles. Key to these applications is a method of predicting the amount of energy the vehicle will consume at any time or location along a given route. Inputs include factors such as driver behavior, weather, vehicle interactions, traffic control and topography. Predictions must provide a reasonably accurate forecast of energy consumption as well as a useful representation of the accuracy of the forecast. Applications are needed that present the expected cost and the range of certainty of the expected cost.

Mr. MacNeille is currently leading a project for estimation of in-use energy consumption for electric vehicles. During graduate school at Case Western Reserve University he developed forecasting models for earthquake prediction. Since then he has worked on modeling molecular structures, combustion simulations, sheet metal forming simulations, robot and coordinate measuring machine path planning simulation and traffic simulation. He has also worked on developing spoken dialog systems for human-machine interfaces and implementation of special purpose computing architectures from massively parallel systems to embedded vehicle processors. Mr. MacNeille is an inventor on over 26 patents, published more that 20 papers and has recently received a Technical Achievement Award for work on the Emotive Driver Advisory System (EDAS).

ROOM #110

6:00 PM Vehicle Automation – Then and Now

Robert Neff

Intrass Corporation – Co-Founder
Sales and Marketing insight - Manager

SAE Dedicated Short Range Communication
- Member J2735 Tech. Standard Committee
- Chairman Vehicle Safety Subcommittee

The dream of automated highways has been publicized since 1939. Interest and research has continued thorough out the years up to the present time. The GM Firebird II (1956) and Firebird III (1959) turbine future cars were designed to operate on an automated highway envisioned by General Motors. Walt Disney, in 1958, hosted the "The Magic Highway–USA" segment on his Television show "Walt Disney's Wonderful World of Color". The National Automated Highway System Consortium (NAHSC) Demonstration took place in San Diego in 1997 and successfully demonstrated that the technology exists to build automated vehicles and highways.

- Do people want to fund the construction?
- Do people feel comfortable about using it?
- What is the Government doing to study vehicle automation?
- What decisions are planned?

Bob will describe some of the history of Automated Highways, the 1997 NAHSC Demonstration and factors influencing automated features that have evolved on vehicles since. Bob will discuss how Dedicated Short Range Radio (DSRC) for vehicle to vehicle (V2V), vehicle to infrastructure (V2I) and infrastructure to vehicle (I2V) will influence our future vehicles.

Bob is engaged in Sales and Marketing for companies involved in high technology people, products and services. Bob is a corporate officer in the Intrass Corporation, a startup involved in patented 5.9 GHz DSRC technology. Bob is Chairman of the SAE DSRC Vehicle Safety Subcommittee and is a member of the SAE J2735 DSRC Standard Technical Committee that has written the interoperability standard for V2V communication. The majority of Bob's time at Eaton Corporation was spent in the VORAD Division working on collision warning, adaptive cruise control and blind spot warning using 77 GHz radar. Bob was Technical Lead for Eaton's participation in the NAHSC Demonstration in 1997. Bob serves as Director of Marketing for the IEEE SEM and EMC Society. Bob Graduated from Ferris State University with a Bachelor of Science Degree in Business and an Associate in Arts Degree while studying Engineering.

ROOM #121

5:00 PM Influence of the Advances in Power Electronics, Electromagnetic Actuators and Control in Automotive Steering Systems

Tomy Sebastian, Ph.D.
Chief Scientist
Nexteer Automotive

IEEE Fellow

Developments in control and power electronics and in electric machines are fuelling the application of Electrical Drives in automobiles. This is especially true in automotive steering systems where conventional hydraulic based systems are being replaced by electromechanical systems. In addition to providing the basic function of directional control, these systems are focusing more on comfort, fuel economy, and active safety. This presentation will discuss the impact of the electrical motor drives on steering system technologies.

Tomy Sebastian received the Ph.D. degree from the University of Toronto, Canada, in 1986. He was with the R&D Center of Black and Decker in Towson MD from 1987-1992. Since 1992 he has been working at the Innovation Center of Nexteer Automotive in Saginaw, MI, where he is currently the Chief Scientist. He also taught several courses on Power Electronics, Motor Drives and Advances Motor Design at University of Maryland, College Park, MD, The Ohio State University, Columbus, OH and University of Toronto, Ontario, Canada at various times.

Dr. Sebastian is a Fellow of IEEE. He is co-recipient of an IEEE Industry Application Society Transactions first-prize paper award. He is the recipient of the 2010 IEEE Industry Applications Society Outstanding Achievement award. He was the General Chair for the First IEEE Energy Conversion Congress and Exposition (IEEE ECCE 2009) held in San Jose, CA.

ROOM #117

6:00 PM Harnessing Radiation Pressure

Tal Cameron, Ph.D.
Assistant Professor
University of Michigan

Dr. Cameron will report on recent experimental results in exciting mechanical modes from 50 MHz to 11 GHz in silica micro-spheres. The vibration is excited with light and is opening a new way to control optical devices. Applications include local oscillators and sensors.

Dr. Tal Carmon is an Assistant Professor at the Optics and Photonic center at the University of Michigan, Ann Arbor where he uses the pressure that light applies to control photonic-MEMS. He received his PhD from the Israel Institute of technology and is the recipient of the Air Force Young Investigator Award.

ROOM #117

5:00 PM Inexpensive Highly Parallel Computing on the Desktop

Jim Morgenstern

Image Mining, LLC

Mr. Morgenstern's presentation will focus on using the Nvidia CUDA technology to realize robust, high throughput parallel algorithms at bargain prices [one can put 512 cpus to work in parallel within a PC enclosure for as little as $400]. The increased throughput from CUDA can enable more robust solutions in many disciplines: signal and image processing, bioinformatics, CAD, and other engineering oriented, computation-bound areas. CUDA is an evolving yet robust technology but realizing its potential is not a straightforward task. In the presentation he explain that typically a user needs to turn algorithms inside-out in order to realize them in the CUDA parallel universe and how to go about that. If time permits, examples from image processing will be presented.

Mr. Morgenstern is a systems engineer whose career has focused on developing successful products and systems that integrate sensors with image and/or signal processing. He has developed algorithms for the automatic extraction of information from a diverse set of sensors including multiband video cameras, FLIRs, multispectral scanners, LIDAR and other 3D imagers, Radar, Synthetic Aperture Radar, medical EKG, medical ultrasound, UV and XRay. He was a part of the core team that developed the Black Beam Interferometer for 3D inspection of high quality surfaces. He has worked in remote sensing, industrial inspection, space observation and military sensing. He participated in the design of the Thematic Mapper. Lately he has developed algorithms on massively parallel computers and also on GPGPU parallel systems. Mr. Morgenstern holds BS degree from the University of Michigan in Physics and a MS degree in Systems Engineering from the University of Michigan School of Engineering. Mr. Morgenstern is a member of IEEE and SPIE.

ROOM #121

6:00 PM Improved Fuel Economy by Eliminating Idle Speed Spark Retard for Lean Burn Applications.

Jim Kerns

Senior Engineer
Ford Motor Company

Reduced engine idle speed reduces fuel consumption but requires active idle speed control (ISC) to avoid stalls due to accessory load disturbances. For gasoline engines, spark advance is used in conjunction with air flow for the idle speed control. However, for spark control to be effective the nominal spark timing has to be retarded from the optimal timing to allow spark to increase torque. This offsets the fuel consumption benefit from lower speeds. During lean homogenous operating modes, Fuel Assisted ISC (FA-ISC) uses fuel to increase torque (similar to diesel and gasoline stratified charge) eliminating the need for the retarded nominal spark. The engine then operates close to optimal spark and the lean air fuel limit for optimal fuel economy.

Jim Kerns, a Senior Engineer at Ford Motor Company, has spent the last 35 years working on improvements to powertrain and emission controls as well as on board diagnostics. Currently, he is working in Powertrain Controls Research and Development where he has been a central figure in the design of the current generation of air fuel control and diagnostics at Ford Motor. Other work has included algorithm design for controlling active aero devices and lean burn air fuel control. To date, he has been granted 59 U.S. patents and has several others pending. Jim has a B.S. in Mechanical Engineering from the University of Michigan, and a M.S in Systems and Controls form Wayne State University.

5:00 PM Electric Motor Drives and Power Electronics for Electric/Hybrid Vehicles and Renewable Energy Systems

Dr. Iqbal Hussain

Professor
Electrical and Computer Engineering
University of Akron

IEEE Fellow

Environmental concerns and energy challenges have prompted efforts to develop clean, efficient and sustainable technologies for renewable energy and alternative transportation systems. The core technologies in these systems include power electronics, electric machines, digital controllers and energy storage. The electric motor drive is an integral component in the electric power transmission path of an electric or hybrid vehicle that operates either in the motoring mode or in the generating mode to process the power flow between the energy store and the wheels. The electric machine is also an integral component for wind and wave renewable energy systems. In addition, the renewable energy and alternative vehicle systems require power electronic components for power and energy processing. The power electronic converters are the basis for the plug-in electric vehicle (PEV) infrastructure. The power semiconductor devices and the high-performance digital signal processors are the essential enabling technologies for the power electronic segment of the system. The controller algorithm is designed and implemented to provide desired response characteristics, and accurate tracking of the control command. The system components are designed synergistically to deliver high efficiency, performance and reliability. This talk discusses the operating principles of the various electric machines, the machine control algorithms, and power electronics for motor drives and renewable energy systems.

Dr. Husain received the B.Sc. degree from Bangladesh University of Engineering and Technology, Bangladesh, and the M.S. and Ph.D. degrees from Texas A&M University, College Station, Texas, in 1987, 1989 and 1993, respectively. He manages the electric and hybrid vehicle program at the University of Akron. He is the past chairman of the IEEE-IAS Electric Machines Committee, the current Technical Program Committee Co-Chair of the Energy Conversion Congress & Expo (ECCE), and a member of the Steering Committee for the IEEE-PEV conference. Dr. Husain received the 2006 SAE Vincent Bendix Automotive Electronics Engineering Award, the 2004 College of Engineering Outstanding Researcher Award, the 2000 IEEE Third Millennium Medal, the 1998 IEEE-IAS Outstanding Young Member award, and several IEEE-IAS prize paper awards. He became an IEEE Fellow in 2009.

6:00 PM Real-Time Modeling and Identification of Battery Systems for Enhanced Battery Management

Le Yi Wang, Ph.D.

Professor
Dept. Electrical and Computer Engineering.
Wayne State University

Renewable energy generation, vehicle electrification, and smart grids rely critically on energy storage devices for enhancement of operations, reliability, and efficiency. Battery systems consist of many battery cells, whose characteristics are different even when they are new, and change with time and operating conditions due to a variety of factors such as aging, operational conditions, and chemical property variations. Their effective management requires high fidelity models. This talk will present some recent advancement on adaptive estimation of SOC (state of charge), modeling and identification algorithms for battery models that capture individualized characteristics of each battery cell and produce updated models in real time, and estimation of cell voltages without cell-level sensors. We will show that typical battery models may not be identifiable. Unique battery model structures require modified input/output expressions, and standard least-squares methods will encounter identification bias. Modified model structures and identification algorithms are devised to resolve these issues. System identifiably, algorithm convergence, identification bias, and bias correction mechanisms are rigorously established. A typical battery model structure is used to illustrate utilities of the methods.

Le Yi Wang received the Ph.D. degree in electrical engineering from McGill University, Montreal, Canada, in 1990. Since 1990, he has been with Wayne State University, Detroit, Michigan, where he is currently a Professor in the Department of Electrical and Computer Engineering. His research interests are in the areas of complexity and information, system identification, robust control, H-infinity optimization, time-varying systems, adaptive systems, hybrid and nonlinear systems, information processing and learning, as well as medical, automotive, communications, power systems, and computer applications of control methodologies. He was a keynote speaker in several international conferences. He serves on the IFAC Technical Committee on Modeling, Identification and Signal Processing. He was an Associate Editor of the IEEE Transactions on Automatic Control and several other journals, and currently is an Editor of the Journal of System Sciences and Complexity and an Associate Editor of Journal of Control Theory and Applications.