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## Volunteers needed for section executive committee

IEEE Vancouver relies on individual members - volunteers who chose to get involved in the running of the section. We rely on volunteers to set policies, put on technical meetings, and to enhance our services to our members.

Currently we are looking for a volunteer to fill the role of section Membership Development chair. This role includes coordination of membership related activities and membership campaigns here in the section. The MD chair works cooperatively with other members of the executive to provide information about the benefits of IEEE membership. This role is also responsible for driving membership and organizing member elevation drives as well as participating in section and chapter events in order to attract new members. Strong communication skills are required for this role and previous experience with MS Office tools is highly desirable.

We are also searching for volunteers with talent and interest in event organization and activity coordination. The Section Event Coordinator will assist executives in organizing and holding technical meetings, chapter activities, and section events.

We are also putting together a Multimedia Team and are looking for volunteers to work on video and audio related production tasks. There is great opportunity for capturing the events of the section and there have been some audio/video recordings in the past that would need conversion and editing.

If you have an interest in these positions, but don't consider yourself an expert, please don't hesitate to get involved – (hands-on) training is provided for all of our volunteer positions.

There are many other volunteer roles and positions available, so if you have an interest in serving please contact me at the coordinates below, or any other member of the section executive - see Contact Us

We look forward to welcoming you on to the IEEE Vancouver team!

Kouros Goodarzi  
IEEE Vancouver chair  
[krs@ieee.org](mailto:krs@ieee.org)

## LNG development and implications for BC Hydro

Warren Bell  
BC Hydro

Tuesday 10 April  
12:00 Noon - 1:00 PM

BC Hydro  
Dunsmuir Auditorium  
333 Dunsmuir St. Van.

Several major liquefied natural gas (LNG) facilities have been proposed for the north coast. Government has announced that the first two plants will be supplied with power by BC Hydro. This presentation will provide an update on BC Hydro's efforts to address some of the challenges in meeting the energy requirements of new LNG facilities.

**Speaker:** Warren Bell is Manager, Strategic Planning in the Energy Planning and Economic Development group at BC Hydro. He is responsible for evaluating the economic impacts of BC Hydro projects and activities, including expansion of the BC Hydro system

to serve new loads. His current focus is on evaluating energy supply options for proposed liquefied natural gas facilities on BC's north coast. Before joining BC Hydro in October 2010, Warren spent 5 years as a consultant and 14 years with the BC Government. His most recent role in government was as Executive Director, Alternative Energy, at the Ministry of Energy and Mines where he worked on the development of the Clean Energy Act. Prior to that, Warren was Executive Director, Climate Policy at the Climate Action Secretariat in the Office of the Premier. Warren has degrees in economics from the Universities of Victoria and Western Ontario.

### Information

Power and Energy chair  
Rama Vinnakota  
Rama.Vinnakota@bchydro.com



David Hill

University of Sydney

Tuesday 03 April  
11:30 am to 12:20 pm

ASB 10901  
(IRMACS boardroom),  
Simon Fraser U, Bby

### Sponsors

All 3 events sponsored by  
IEEE Circuits and  
Systems Society  
joint chapter of the  
Vancouver/Victoria  
sections and  
IRMACs Coast to Coast  
Seminars Spring 2012

## Planning and control of massive networks

The modernization of infrastructure networks requires coordinated planning and control. Considering traffic networks and electricity grids raises similar issues on how to achieve substantial new capabilities of effectiveness and efficiency. For instance, power grids need to integrate renewable energy sources and electric vehicles. It is clear that all this can only be achieved by greater reliance on systematic planning in the presence of uncertainty and sensing, communications, computing and control on an unprecedented scale, these days captured in the term 'smart grids'. This talk will outline current research on planning future grids and control of smart grids. In particular, the possible roles of network science will be emphasized and the challenges arising.

**Speaker:** David J. Hill received the BE (Electrical Engineering) and BSc (Mathematics) degrees from the University of Queensland, Australia, in 1972 and 1974, respectively. He received the PhD degree in

Electrical Engineering from the University of Newcastle, Australia, in 1977. He currently holds the Ausgrid Chair of Electrical Engineering and an Australian Research Council Professorial Fellowship in the School of Electrical and Information Engineering at the University of Sydney, Australia. He is also a Senior Principal Researcher in National ICT Australia. His general research interests are in network systems, stability analysis, distributed control and applications to infrastructure type networks, especially the control and planning of power systems. His work is now mainly on smart grid control and future energy networks.

Prof. Hill is a Fellow of the Institution of Engineers, Australia, the Institute of Electrical and Electronics Engineers, USA, the Society for Industrial and Applied Mathematics, USA, the Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering. He is also a Foreign Member of the Royal Swedish Academy of Engineering Sciences.

### Information

Circuits and Systems  
chair Ljiljana Trajkovic  
ljilja@cs.sfu.ca



## Transition from CSA/UL/IEC 60950-1 to new standard product safety UL/IEC 62368-1



Michael Tang  
CSA International

Wednesday 18 April  
6:00PM  
(finger food at 5:30PM)

Alpha Technologies Ltd  
Training Room B  
77000 Riverfront Gate Bby

### Cosponsors

Alpha Technologies Ltd;  
Canadian Standard  
Association

### Info & Registration

Joint Aerospace and  
Electromagnetics  
vice chair  
Peter Lim  
peter.lim@alpha.ca

Following keynote speaker Randy Tkatch, VP of Engineering Alpha Technologies Ltd, Michael Tang will introduce a safety standard for audio/video information technology and communication technology equipment, Part 1 - Safety requirements, IEC 62368-. This is a new safety standard containing requirements developed using Hazard Based Safety Engineering (HBSE) principles.

1. Background and purpose of this new safety standard – 5 ~ 10 min.
2. Principles of HBSE – 20 ~ 30 min
3. General safety principles of IEC 62368-1- 10 min
4. Application overview of IEC 62368-1 with respect to potential injuries – 5 ~ 15 min

5. CSA's position as it relates to transitioning from IEC 60950-1 to IEC 62368- 2 ~ 5 min
6. Questions and answers period: 30 ~ 60 min

**Speaker:** Michael Tang, Technical Adviser, CSA International, is a Professional Engineer in BC, Canada and a Chartered Engineer in the United Kingdom with a Bachelor of Science degree in Electrical and Electronic Engineering. He has 12 years of experience in ITE products safety. In addition, he also has 18 years of experience in the field of Electrical, Electronic and Instrumentation Engineering which included the design, installation, maintenance and commissioning of electrical/instrumentation projects.



IEEE Joint Aerospace and  
Electromagnetics Chapter

## IEEE Vancouver hosts HKIE delegation

*Members of IEEE Vancouver meet visitors investigating Most Livable City [1]*

Members of IEEE Vancouver met on March 6 with a delegation of visiting engineers from the Hong Kong Institution of Engineers (HKIE). The meeting involved an introduction/overview of the IEEE and the IEEE Vancouver section, as well as of HKIE, followed by a quick self-introduction of each attendee, then discussion of the delegation's goals, (very briefly -) the current state of engineering accreditation and development in both Canada and Hong Kong.

The topic of women in engineering was also discussed and it was noted that HKIE is currently working on establishing a WIE group.

The delegation's goals in this trip, under the title "Engineering the most livable city in the 21st Century" were to network with local engineering groups and to learn about the ongoing efforts taking place in Vancouver in the realm of sustainable development, and other current trends in engineering. The discussion was casual and the atmosphere was friendly and professional at the same time.

The HKIE delegation was composed primarily of members of the HKIE's Young Member Committee (HKIE-YMC), accompanied by several senior members of HKIE, including the president of HKIE. HKIE-YMC is a somewhat similar in concept to the IEEE GOLD Affinity Group, except that members are 35 years of age or younger.

The visiting group was multidisciplinary – it included engineers practicing in several domains, such as civil, mechanical, electrical and electronics, industrial, and so on. The group members work with a variety of interesting companies and with the Hong Kong government, on a variety of projects. HKIE is also responsible for engineering accreditation in Hong Kong, and some of the senior members who attended the meeting are active accreditation board members. Notably, HKIE president Dr. F. C. Chan has also been active for many years with IEEE, and has previously headed IEEE Hong Kong Section's PES/IAS Joint Chapter.

Finally, attendees took a short break for mingling and networking, enjoying the treats arranged for us by the catering service. They then proceeded to wrap up, taking some group pictures, and exchanging souvenirs. IEEE Vancouver secretary Steven McClain provided IEEE pins and copies of the centennial booklet for the visitors. HKIE members of the group provided some leaflets and brochures, and presented a nice gift to IEEE Vancouver – an impressionist style painting of the famous Qingming Scroll by Zhang Zeduan (12th century) – depicting a Chinese village during the Qingming festival.

(Photo p. 7)

[1] The Economist. (2009, June 8). Liveable Vancouver  
[http://www.economist.com/blogs/gulliver/2009/06/liveable\\_vancouver](http://www.economist.com/blogs/gulliver/2009/06/liveable_vancouver)



Sanja Boskovic  
BCIT

Tuesday 27 March  
6:00 - 7:30 PM

Room 1525 SFU Harbour  
Centre, 515 W Hastings St

Open to public and free  
but space limited so  
please RSVP at:  
<https://vancouver.ieee.ca/wie>

**Information**

Women In Engineering  
Affinity Chair  
Zahra Ahmadian  
zahraa@ece.ubc.ca

## An engineer's journey through war, cancer and life

The sustainable power engineer, Dr. Sanja Boskovic is not a typical power engineer. Raised in Yugoslavia and educated in Mechanical Engineering at the University of Sarajevo, Sanja was one of the few women practicing in power and process engineering in her country. But that was just the beginning.

In this talk Sanja will share her amazing journey through the Bosnian war, family life, graduate school, fighting cancer and finally her successful career as chief instructor at BCIT.

Speaker: Dr. Sanja Boskovic is Chief instructor and the lead Virtual Classroom Thermodynamics and Applied Mechanics instructor for BCIT's Power Engineering innovative distance education methodologies. She launches successful on site programs and ensure successful completion for all students. She has been pivotal in establishing quality instruction for clients like Norske Canada and Celgar Pulp Mill. She was the 2011 recipient of the BCIT Alumni Association Excellence in Teaching Award.



Judi Richardson  
Richardson Management

Monday 16 April  
6:00pm - 8:00pm  
Room 1530 SFU Harbour  
Centre, 515 W Hastings St

**Cosponsor**  
WIE Affinity Group

Free - non-IEEE  
members welcome  
To confirm attendance  
contact  
Adam Krolak  
Joint Management chair  
[a.krolak@ieee.org](mailto:a.krolak@ieee.org)

## The power and peril of vision

'Vision' or a painted picture of future 'success' is powerful. The ability to clearly guide, challenge and inspire an organization to achieve its long term goals is the sign of an excellent leader. Yet vision alone does not lead to success and vision without strategy and execution can lead to chaos.

**Speaker:** Judi Richardson MBA ICD.D is the principal of Richardson Management Inc., a strategic consultancy established in 1998 to help organizations articulate and achieve their vision. RMI focuses on critical areas such as Vision & Values, Strategy and Branding. Diverse clients have included HSBC Capital, APG Hong Kong, COBS Breads and the UBC Department of Electrical & Computer Engineers among many others.

Armed with an MBA from York University and the drive of a former Canadian National Ski Team member, Judi has held leadership positions in several organizations including ACNielsen, Scott Paper, Dairyworld, Starbucks and KremeKo Inc. where she spearheaded the record-breaking Canadian launch of Krispy Kreme as VP Marketing & Business Development.

With over 25 years of experience, Judi is a certified corporate director through the Institute of Corporate Directors (ICD.D) and sits on the Board of Directors for VRX Worldwide (TSX-V:VRW), Simpson Seeds Inc. and Parkinson's Society Canada. Former board/advisory board roles include 1800GOTJUNK, Nurse Next Door™, KremeKo Inc., North Star Montessori Elementary, kids.now and Climate Smart.



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## OE22 Meeting Announcement: "The state of ocean related activities in Vancouver"



The Vancouver chapter of the IEEE Oceanic Engineering Society (OES) is pleased to announce our inaugural meeting, to be held 21 March, 2012. The theme of the evening is "The state of ocean related activities in Vancouver", and our keynote speaker will be James A.R. McFarlane, Vice President of International Submarine Engineering and previously the Head of the Office of Resources and Environmental Monitoring at the International Seabed Authority.

### Meeting Details:

Date: Wednesday March 21, 2012.

Time: 19:00 - 21:00

Place: Royal Vancouver Yacht Club (<http://www.royalvan.com/> )

Address: 3811 Point Grey Road, Vancouver

"Coffee & cookies" will be provided.  
All are welcome.

### Preliminary Agenda:

19:00: Arrivals

19:10: Welcome & introductions

19:20: Plans for OE22 and future meetings

19:30: Main presentation, speaker: James A.R. McFarlane

20:15: Networking event

21:00: Close

### Other OE22 Events planned for 2012

We aim to hold one OE22 meeting every quarter, i.e. March, June, September and December. These meetings are intended to be interesting to a broad audience, avoiding detailed technical presentations, and focussing on more high level topics.

Potential themes for upcoming meetings include:

- Surface applications (e.g. tankers, piloting etc.)
- Subsea applications (e.g. ROVs, AUVs, subsea networks etc.)
- Energy, Environment & Political (e.g. wave energy, effect of tankers on Haida culture etc.)



UNBC



Light refreshments served



tabloid-orange

UNBC  
DEPARTMENT  
OF COMPUTER  
SCIENCE AND  
IEEE NBC

Invite Faculty, Students,  
Staff and the Public to attend  
the following presentation:

## “Distributed Intelligent Systems: A Paradigm Shift”

**Dr. William A.  
Gruver**

President,  
Intelligent Robotics  
Corporation  
Professor Emeritus  
Simon Fraser  
University

**Friday**

**March 23, 2012**

**1:00 pm – 2:30 pm**

**Room: 5-176**

Centralized systems are unsuitable for large-scale systems integration because of their high reliance on centralized communication, high complexity, lack of scalability, and high cost of integration. The use of distributed intelligence technologies avoids these weaknesses by building intelligent systems with physical and software agents that operate autonomously to independently handle specialized tasks, and cooperate to satisfy system-level goals and thereby achieve a high degree of flexibility.

This talk provides an introduction to the technologies and applications of distributed intelligent systems for dynamically changing, networked environments. It describes how a peer-to-peer environment can be built to distribute the logistical and strategic requirements of a system, while improving robustness and scalability.

The presenter will contrast centralized and distributed systems, describe development frameworks for distributed systems, present recent advances based on multi-agent and holonic systems, and survey applications involving manufacturing automation, distributed scheduling, automated decision support, RFID tracking, and distributed energy systems. Specific examples and success stories of implementations in industrial environments worldwide will be provided.

Dr. Gruver will also give a short presentation on the IEEE Systems, Man, and Cybernetics Society at the end of this talk.

## Message from the chair

Dear members,

The past few months have been very busy for the section, and as we prepare to embrace spring a lot of the activities come to fruition. The section held the annual officer training workshop on Saturday February 4th. This event brings together new section officers for a full day of training preparing the newly elected chapter chairs and volunteers for a year of events. Tools of the trade are presented and officers get a chance to converse with more seasoned volunteers of the section. This is only one of the opportunities we have in training new volunteers for leadership and more productive management of the chapter activities.

The rest of the month of February has also seen section officers preparing for our annual AGM and Gala dinner event scheduled for Monday March 26th. If you haven't had a chance to register yet, I strongly recommend doing so. Please visit <http://vancouver.ieee.ca/> for details of registration. As has been the case in the past few years, online registration with credit card payment is available for your convenience at the following site:  
[https://meetings.vtools.ieee.org/meeting\\_view/list\\_meeting/10849](https://meetings.vtools.ieee.org/meeting_view/list_meeting/10849).

The AGM will be held at Vancouver Convention Center and will include reports of activities of the section in 2011, awards and recognition including Centennial volunteer awards and student scholarships, and a keynote speech by Dan Gelbart from UBC about inventions in the past century. Don't miss on an opportunity to mingle with your peers and have a good time with excellent food and beautiful views of the inlet.

Last year, the Centennial committee prepared a booklet in commemoration of 100 years of IEEE Vancouver activity. Chris Scholefield, our historian and the rest of the Centennial volunteers have done a marvelous job in collecting articles and records for this booklet. Limited quantities of this fantastic publication would be available during the AGM for pickup. The electronic version is also available online, but personally I prefer the convenience of the printed booklet.

Our treasurer, Steven McClain, and our GOLD chair, Ophir Kendler had the opportunity to host a group of young engineers from Hong Kong Institution of Engineers on March the 6th. A report is included in this issue of Contact.

As a follow-up to the plan I presented in the last Chair's message in the January issue of the Contact, I would like to announce that we will be conducting a survey on how members think about our events and activities. The link to the survey can be found on our website under Recent News and you are encouraged to participate - visit: <http://www.surveymonkey.com/s/FL9WDDM>

Recently, there have been a number of new initiatives in the section that I should mention here. We received the official approval for the formation of a Consultants' Network within our section. The network is an attempt to bring consultants together under the IEEE umbrella. It should provide an excellent opportunity for those independent members that provide consulting services in the IEEE related fields. Please contact Alon Newton, our vice-chair if you are interested in joining or would like to volunteer with the network.

Another new arrival in the section is the Humanitarian Initiatives Committee representation. Paul Lusina has taken on the responsibility to engage us in the efforts lead by IEEE Canada and we will be hearing more from him and HIC. The inaugural meeting of the committee was held on March 14th. Please let Paul know if you are interested in getting involved or participate.

Last but not least, our own Zahra Ahmadian has been appointed as the Women in Engineering Chair at the IEEE Canada level. I would like to take this opportunity to thank her for all the work she has done in creating a WIE chapter we can all be proud of, and also congratulate her on her new appointment and wish her the best of success as the IEEE Canada WIE Chair. The confidence shown by IEEE Canada Steering Committee in Zahra is a direct result of her prolific volunteer work with the section. We are truly proud to have her as a volunteer and look forward to many more years of working with her.

In closing, I would like to wish all of you a happy spring and ask you again to consider volunteering with the section. Your volunteering can be as simple as engaging any of the executives in a conversation on how to improve on activities and events all the way to organizing an international conference in Vancouver. It all starts with you contacting one of the executives.



HKIE exchange with IEEE Vancouver's WIE and GOLD groups 06 March 2012 - (Story p. 3)



# IEEE Vancouver 2012 gala and AGM

**Monday 26 March 18:00 - 21:30**

**Vancouver Convention Centre  
East Building - (with the sails) 999 Canada Place**

**18:00 Registration 18:30 Welcome note and officer's reports  
19:00 Awards and recognition 19:30 Dinner 20:30 Keynote presentation**

IEEE Vancouver is pleased to invite all members to join us for this year's Annual General Meeting and gala. We have an exciting evening planned for our members and guests – a fabulous location overlooking Burrard Inlet, delicious food, an outstanding speaker, and the opportunity to network with your friends and colleagues.

We will be hearing about the celebrations of IEEE Vancouver's 100th anniversary as we wrap up the centennial activities. The feature presentation by Dr. Dan Gelbart of UBC will be on the subject of inventions in the past 150 years.

Early bird discount of up to 20% if you register before noon on March 2nd.

\$25 students and life members

\$35 members

\$45 non-members (1 guest per member).

You can register at <http://goo.gl/2u4pt>. Online payment is available and encouraged in the registration process.

Guests should be registered separately using the same link. Please include your IEEE membership number and a contact email for yourself and your guest. For more information, or to arrange other means of payment, please email Alon Newton at [anewton@ieee.org](mailto:anewton@ieee.org)

- Hearts of Caesar salad • Red potatoes with yogurt and dill
- Greek style salad edemame • Black eye peas and black bean salad • Fresh asparagus mimosa
- Black Forest turkey, pepper roast beef, maple ham, prosciutto and grilled chorizo
- Grilled vegetable platter with bocconcini, balsamico glaze
- Roasted pepper crust top sirloin of aged beef • Grilled piri piri chicken breast
- Fruit salsa wild mushroom ravioli alla panna • Roasted nugget potatoes
- Bouquetiere of market fresh vegetables • Sliced seasonal fruits
- Fine selection of cakes, tarts and French pastries including Black Forest Charlotte, blueberry cheesecake, chocolate eclairs, fresh fruit flans, strawberry cointreau
- Assorted fruit creams and tiramisu • House-made biscotti
- Freshly brewed Moja organic coffee and imported teas

Mehrzaad Tabatabaian  
BCIT

Sanja Boskovic  
BCIT

Tuesday 24 April  
Noon - 115 pm

BC Hydro  
Edmonds A01 - Edmonds  
Centre Auditorium

**Information**  
Power and Energy chair  
Rama Vinnakota  
Rama.Vinnakota@bchydro.com

## Thermoelectric power generation from waste heat

A co-gen application for BCIT's CEER

The discovery and application of new clean energy sources and optimizing the efficiency of existing systems has become a major focus of today's research. The purposes of research in this area are to reduce energy consumption, expand available resources, and decrease the impact of our actions on the Environment. Our work explores the feasibility of using thermoelectric generators (TEG) to utilise available waste heat in CEER facility at BCIT to generate electricity and increase the overall efficiency by combining heat and power generations. The outcomes of this work could be expanded and applied to a bigger scale industrial plant (e.g. thermo plants, process plants) when our work-in-progress experimental results are ready for analysis.

Our research plan is to have a system with 14 commercial thermoelectric generators constructed to convert heat from the flue gasses to electrical energy. We are starting to perform a set of experiments in order to obtain data for the performance of this system including TEG modules. We are planning to use similar systems around BCIT campus for harvesting electrical energy from available waste heat. We also are looking for industrial partner(s) for bigger demonstration sites and future development of similar and modified systems. For IEEE2012 session we will present a detailed description of the technology and present the results of feasibility study (Phase 1).

**Speakers:** Dr. Mehrzaad Tabatabaian is a Faculty Member- Instructor and Program Head- at the Mechanical Engineering Department, School of Energy at BCIT. He does research on renewable energy systems and modeling. Dr. Tabatabaian is Chair of Energy Research Committee and is actively involved in the energy-initiative activities. He has published several papers in various scientific journals

and conferences, holds several patents in the energy field. Dr. Tabatabaian's recent focus is on wind and solar power which has resulted in registered and pending patents. Recently, Mehrzaad was instrumental in establishing a new division for Energy Efficiency and Renewable Energy (DEERE) at APEGBC. Mehrzaad offers several PD seminars for the APEGBC members on the subjects of wind power, solar power, renewable energy, and Finite-Element modeling method.

Mehrzaad Tabatabaian got his BEng from Sharif University of Technology (1979), graduated from McGill University (MEng 1986, PhD 1990) in Montreal, Canada. He has been an active academic, professor, and engineer in leading alternative energy, oil, and gas industries. Mehrzaad has also a Leadership Certificate from the University of Alberta. He is a member of ASME and ASEE.

Dr. Sanja Boskovic is Chief instructor and the lead Virtual Classroom Thermodynamics and Applied Mechanics instructor for BCIT's Power Engineering innovative distance education methodologies. The following are significant personal contributions.

- Incorporated new environmental technology in every class, either participating in the research or bringing the new technology to classroom and her students
- Study on the Supercritical Water Oxidation System estimating and modeling heat transfer coefficient
- Developed and patented the construction of impact separator, measuring velocity profiles, estimating separator efficiency in Fluidized Bed Boilers
- Contributed to heat transfer and sulphur caption in Pressurized Fluidized Bed Boilers



## Advances in pharmaceutical crystallization: control of polymorphic identity, shape, and size distribution



Dr. Richard D. Braatz  
MIT

Thursday 29 March  
12:00 - 1:00 pm

CHBE 2.02  
Chemical & Biological  
Engineering Building  
2360 East Mall, UBC

**Cosponsor**  
UBC Chemical and  
Biological Engineering

An overview is provided on advances in the design and operation of pharmaceutical crystallizations to control polymorphic identity, shape, and size distribution. A systematic methodology is described for the selective crystallization of metastable and stable polymorphic and solvated forms based on the feedback control of solution concentration measured in process using Attenuated total reflection-Fourier transform infrared (ATRFTIR) spectroscopy calibrated using multivariable statistical methods. The methodology is shown to be capable of designing and operating seeded batch crystallizers to manufacture large crystals of uniform size by suppressing secondary nucleation. A modification of the methodology is able to achieve a target size distribution in semi-batch crystallization by employing continual seeds manufactured by a spatially localized zone of highly intense mixing such as occurs in a dual-impinging jet crystallizer.

The methodology has been evaluated in theoretical, simulation, and experimental studies for a large variety of pharmaceutical compounds. The maximum supersaturation to allow during the crystallizer operations is determined by employing in-situ laser backscattering (focused beam reflectance measurement, FBRM) during a semi-automated initial experiment design, and FBRM is also employed to confirm that secondary nucleation is suppressed during pharmaceutical production runs. A methodology is proposed for the manipulation of crystal shape, by employing in-situ fines

dissolution. The presentation ends with a discussion of directions towards control of multiple properties of the crystal product.

**Speaker:** Richard D. Braatz is the Edwin R. Gilliland Professor of Chemical Engineering at Massachusetts Institute of Technology (MIT). He received his M.S. and Ph.D. degrees from the California Institute of Technology and held visiting positions at DuPont and Harvard University and was the Millennium Chair and Professor at the University of Illinois at Urbana-Champaign before moving to MIT.

Prof. Braatz' research is on the modeling, design, and control of manufacturing processes and products that arise in the pharmaceutical, chemical, and related industries. Richard has consulted or collaborated with numerous companies including United Technologies Corporation, IBM, Merck, Abbott Laboratories, Pfizer, Eli Lilly, and Novartis, and his contributions to crystallization process control and systems engineering in the pharmaceutical industry have been recognized by the AIChE Excellence in Process Development Research Award, the Collaboration Success Award from The Council for Chemical Research, and the IEEE Control Systems Society Transition to Practice Award. He has coauthored 3 books, over 140 journal papers, and two patents on process technologies and is a Fellow of the Institute of Electrical and Electronics Engineers and the International Federation of Automatic Control.

### Information

CS/RA/SMC

Joint chapter chair

Ryozo Nagamune

nagamune@mech.ubc.ca





## Industrial Tour at the Endurance Wind Power



IEEE Vancouver  
Joint IAS/IES  
& PES Chapter



### Tour Summary

Unlike large wind power plants, small-scale wind installations provide power to isolated grids, remote communities or stand-alone residential/commercial loads. The opportunities and challenges in the small-wind area are unique. Endurance Wind Power, headquartered in Surrey, BC, has become a global pioneer in this field, in a very short timeframe, and projects itself as..

“ Endurance Wind Power is a manufacturer of advanced wind turbines designed specifically for distributed wind power applications. Our line of modern, induction based wind turbines bring efficient reliable safe and quiet renewable energy within reach of homeowners, businesses and institutions across North America and an expanding global market. Our North American-wide dealer network has been serving their communities for decades and are working in close partnership with Endurance to support our customers from sales consultation, site assessment, permitting and incentives through installation and ongoing support. Together our team strives to provide Endurance wind turbine owners with the best products and support in the market today!”

This tour will provide insight into the relevant technologies (research, development & demonstration) as well as Endurance’s business model and global reach.

Further information on Endurance can be found at: <http://www.endurancewindpower.com/>  
(Tel: 604.579.9463 Fax: 604.591.3505 Email: [info@pattonandcooke.com](mailto:info@pattonandcooke.com))

**Date:** Thursday, Apr 26, 2012  
**Time:** 3.00 pm – 5.00 pm  
**Venue:** #107, 19052 26th Avenue,  
Surrey, BC, V3S 3V7  
**Registration is Required,**  
Please contact: Jahangir khan at  
<[Jahangir.khan@powertechlabs.com](mailto:Jahangir.khan@powertechlabs.com)>

**LIMITED SPACE**  
**First come first serve**

David Ince  
BC Hydro

## BC's electricity market: the factors driving BC Hydro's outlook for demand and supply

Wednesday 23 May 12:00  
noon - 1:00 pm

BC Hydro - Edmonds A01  
Edmonds Centre  
Auditorium

BC Hydro's load forecast is a key driver of the corporation's long-term development plans; the forecast drives significant investments in new electricity generation and transmission assets. It also forms the basis of BC Hydro's electricity procurement requirements, much of which is sourced from BC's independent power producing sector. David Ince will present an overview of BC Hydro's forecasts, which include projections of mining, forestry, oil & gas and LNG activity. Substantial changes are pending for the provincial economy, and they will summarize what BC Hydro sees as the major economic, demographic and commodity price trends that are expected to drive these changes.

**Speaker:** David Ince spent the first 13 years of his career in the Alberta natural gas industry, where he was involved in production & pipelining, and gas supply strategies and contracting. He was in the gas industry during the transition to supply deregulation. In the late 1990s, during Alberta electricity market reforms, he worked on electricity supply strategies and procurement, green energy contracting and development, and he was integrally involved in the transition to market deregulation. David joined BC Hydro in 1999, and has since been involved in electricity supply planning and contracting, electricity trade oversight, and most recently, managing BC Hydro's long-term load and market price forecasts.

**Information**  
Power and Energy chair  
Rama Vinnakota  
Rama.Vinnakota@bchydro.com

