

# PERSPECTIVES

THE NEWSLETTER OF CSBE Spring 2007 Printemps LES NOUVELLES DE SCGAB

## A Few Words From President Shahab Sokhansanj

### Shahab Sokhansanj

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This message will probably be my last written communication with you as the President of the CSBE/SCGAB.

Some of us are going to be in Minneapolis shortly to participate in the ASABE's annual international meeting and also to take part in the 100th anniversary of the Society. CSBE/SCGAB will be prominently involved in the meeting. We will have our seven elected Fellows inducted jointly with those of the ASABE. The CSBE/SCGAB President and President-elect will share the stage with the ASABE President and President-elect on Wednesday June 20 at the awards ceremony to present the Society's awards to the best of our colleagues. We will also find an opportune time to present a special plaque to the ASABE to commemorate the 100th anniversary of the ASABE.

In addition to joint events, CSBE/SCGAB will have a number of specific events that require your participation. Our AGM will be held on Monday June 18 during the lunch hour. A number of important issues require consideration and approval by the membership. A special session on Tuesday June 19 during the lunch hour has been organized to discuss a set of new missions, visions, and metrics for our Society. CSBE/SCGAB council meets on Sunday June 17 between 4:00-6:00 pm and the new Council meets again Tuesday June 19 at 7:00-8:30 am

As it has always been the case, our profession remains at the crossing points of evolving sciences and technologies. The common words with "bio" as a prefix are coined continuously to claim new or redefined engineering (and nonengineering) disciplines or materials. As the Canadian Society for Bioengineering, we will have continuously define our mission and vision and articulate our specific contributions to the Society. I believe we must stay with our core values - the production of safe and abundant food, clothing, habitat, and energy for fellow persons. We must use the CSBE/SCGAB as a conduit to stay connected with each other, to develop your own inner knowledge, and as a platform to articulate your professional contributions to society at large.

During my presidency I have attended to a number of on-going business aspects of the Society as well as initiated a few new ones. Many of these activities are reported in the President's annual report. I will continue serving the CSBE/SCGAB with the specific duties of the Past President in Council during the coming year and will be an active member for years to come. It has been an enjoyable and rewarding experience and I thank the support and dedication of Council and especially our Society's Manager Jim Townsend.

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## Un mot du Président

*(suite de la page 1)*

Ce message sera probablement ma dernière communication écrite en tant que président du CSBE/SCGAB.

Certains de nous iront bientôt à Minneapolis pour participer à la réunion internationale annuelle de l'ASABE et prendre part au 100e anniversaire de la société. Le CSBE/SCGAB sera impliqué de façon importante dans la réunion. Sept de nos camarades élus y seront installés conjointement avec ceux de l'ASABE. Mercredi, le 20 juin, le président et le président désigné de CSBE/SCGAB ainsi que le président et le président désigné d'ASABE se partageront la scène lors de la cérémonie de remise des prix de notre société aux meilleurs de nos collègues. Nous trouverons aussi un temps opportun pour remettre une plaque spéciale à l'ASABE pour commémorer leur 100e anniversaire.

En plus des événements communs, le CSBE/SCGAB aura un certain nombre d'événements spécifiques qui requerront votre participation active. Notre AGM aura lieu lundi, le 18 juin, pendant l'heure du dîner. Quelques questions importantes nécessitent la considération et l'approbation des membres. Mardi, le 19 juin, une session spéciale a été organisée sur l'heure du dîner afin de discuter d'une série de nouvelles missions, visions et métriques pour notre société. Le conseil de CSBE/SCGAB se rencontre dimanche, le 17 juin, de 16h00 à 18h00 et le nouveau conseil se rencontre de nouveau mardi, le 19 juin, de 7h00 à 8h30.

Comme il a toujours été le cas, notre profession reste au point de croisement des sciences et technologies émergentes. Des mots ayant « bio » comme préfixe sont continuellement inventés pour revendiquer les disciplines ou matériaux de l'ingénierie nouvelle ou redéfinie (et la non-ingénierie). En tant que société canadienne en bio-ingénierie, nous aurons continuellement eu à définir notre mission et vision et à énoncer nos contributions spécifiques à la société. Je crois que nous devons maintenir nos valeurs fondamentales - la production d'une alimentation saine et abondante, de vêtements, d'habitats et d'énergie pour nos semblables. Nous devons utiliser le CSBE/SCGAB comme un conduit pour garder le lien les uns avec les autres, développer notre propre connaissance intérieure et s'en servir comme plate-forme pour énoncer nos exceptionnelles contributions professionnelles à la société en général.

Au cours de ma présidence, j'ai participé à différentes affaires en cours et en ai amorcé quelques-unes. Beaucoup de ces activités ont été rapportées dans le rapport annuel du président. Je continuerai à servir le CSBE/SCGAB dans les tâches spécifiques revenant à l'ancien président du conseil au cours de l'année prochaine et je serai un membre actif dans la société pour les années à venir. Ce fut une expérience agréable et gratifiante et je remercie le conseil pour son appui et dévouement et, particulièrement, le directeur de notre société, Jim Townsend.

## IN MEMORIAM -- JANE BUTT

It is with sadness that we share the news of the passing of Jane Butt, wife of former ASABE Executive Vice President, and Past ASABE President, Jimmy Butt. Countless ASABE members and CSBE/SCGAB members knew Jane through her extensive travels with Jimmy to ASABE and related meetings across the U.S. and abroad. Jane is remembered as a gracious ambassador for the Society who made friends wherever she went. She and Jimmy enjoyed more than 64 years of marriage. We extend our deepest condolences to Jimmy and his family. On behalf of CSBE/SCGAB and its members a card of condolence was sent to Jimmy and family.

## **CSBE/SCGAB AGM and other events at the ASABE AIM 2007 ASABE Centennial Celebration Minneapolis 2007 06 17-20**

On behalf of the CSBE/SCGAB, Shahab Sokhansanj, CSBE/SCGAB President (2006-2007), welcomes all of the participants, especially Canadian members, to this year's ASABE meeting. This is a very special occasion for all of us to join ASABE in celebrating the 100th birthday of the Agricultural and Biological Engineering profession. The CSBE/SCGAB agreed at their 2006 AGM to hold their 2007 annual general meeting outside Canada. This year the CSBE/SCGAB will not have a separate technical meeting but will hold its business meeting at specified venues that are listed in the following schedule. The **Technical Program** listing, with authors and presentation schedules, can be viewed by going to [www.asabe.org/meetings/aim2007/index.htm](http://www.asabe.org/meetings/aim2007/index.htm) and selecting "Technical Program."

CSBE/SCGAB is a constituent member of ASABE with the President serving on the Board of Trustees and with representation on all of the ASABE councils. The mission of the CSBE/SCGAB is similar to that of the ASABE, to promote engineering excellence in biological, environmental, food and bioenergy production and processing systems. The CSBE/SCGAB will be a half century old next year in 2008. The Golden Jubilee celebration will take place in beautiful Vancouver British Columbia along with our regular annual technical and business meetings. You are all invited (see next page).

### **Events to note for Minneapolis:**

#### **SUNDAY, JUNE 17**

##### **CSBE/SCGAB COUNCIL MEETING**

**SUNDAY, JUNE 17 4:00PM-6:00PM**

**Location: 101-I**

#### **MONDAY, JUNE 18**

##### **CSBE/SCGAB ANNUAL GENERAL MEETING AND STUDENT AWARDS**

**MONDAY, JUNE 18 12:00PM-2:00PM**

**Location: M100-C,D,E**

President Shahab Sokhansanj will be presiding at the CSBE/SCGAB Annual General Meeting and Student Awards will be presented. Box lunch will be provided.

#### **TUESDAY, JUNE 19**

##### **CSBE/SCGAB COUNCIL MEETING**

**TUESDAY, JUNE 19 7:00AM-8:30AM**

**Location: 101-I**

A continental breakfast will be served to council persons.

#### **CSBE/SCGAB WORKSHOP**

**TUESDAY, JUNE 19 12:00PM-1:30PM**

**Location: M-100-C,D,E**

The purpose of the workshop is to review and update the Mission Statement and Vision for CSBE. The review and discussion will be based on a document entitled Development of Strategic Goals for CSBE/SCGAB, prepared by the CSBE President Dr. Shahab Sokhansanj. The workshop is open to all CSBE members. There will be a "free lunch" for those members who preregister before June 12!

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### **FELLOWS INDUCTION CEREMONY**

**TUESDAY, JUNE 19 6:00PM-8:00PM**

**Location: Ballroom B**

All ASABE and CSBE/SCGAB attendees are invited to this special recognition ceremony honoring the 2007 ASABE and CSBE/SCGAB Fellows.

### **CENTENNIAL GALA DINNER**

**Tuesday, June 19**

**7:30PM-10:00PM**

**Location: Ballroom A**

You're lucky enough to be among the few ASABE members in history to witness the Society's 100th anniversary, so don't miss out on the Centennial Gala Dinner — it's the event of the year. Invited speakers, dignitaries, and friends of the Society will be featured in a program designed to honor the profession and toast its future. We'll save a few surprises, too, for this business-formal affair, so be sure to add this event to your Minneapolis itinerary!

**COST: \$50 per person**

**WEDNESDAY, JUNE 20**

### **AWARDS RECOGNITION LUNCHEON**

**WEDNESDAY, JUNE 20**

**12:00PM-2:30PM**

**Location: Ballroom A&B**

Plan to attend the most important recognition event of the year. Newly elected Fellows of ASABE and CSBE/SCGAB as well as recipients of major awards will be honored at this luncheon. Also recognized will be preprofessionals and other individuals that have made outstanding contributions to the profession during the past year. The installation of ASABE's 2007 President, Donald Erbach, will immediately follow the awards presentation.

**COST: Included with full meeting registration and spouse/guest registration**

**Additional tickets \$35 per person**

## **PLAN AHEAD FOR 2008!**

### **CSBE/SCGAB 2008 Annual General Meeting, Technical Conference & Fiftieth Anniversary July 13 to 17<sup>th</sup> 2008**

**Tentative Theme:** The role of bioengineering in the developing national and international bioeconomy

#### **Highlights:**

Sunday Workshop  
Evening reception  
Poster sessions  
Concurrent sessions  
Technical tours  
Social tours  
Harbour Cruise



**Location:** Lonsdale Quay Hotel  
North Vancouver

Web site: [www.lonsdalequayhotel.com](http://www.lonsdalequayhotel.com)

A quiet boutique hotel centrally located on the North Vancouver side of Burrard inlet, fifteen minutes by Sea Bus from downtown Vancouver.

## A few words from your CSBE/SCGAB Society Secretary/Manager Un mot du directeur-général/secrétaire de la CSBE/SCGAB



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There will be some changes to Council for 2007-2008. Your President-elect for the coming year will be **Stephane Lemay** as Robert Kok moves up to Preseident. **Stefan Cenkowski** will replace Qiang Zhang as Vice-President (Technical). And there is a new Regional Director for Saskatchewan in the person of **Venkatesh Meda** replacing Lope Tabil. Welcome to all. See the last page of this newsletter for a full listing of your 2006-2007 Council.

### Anniversary greetings for years of CSBE/SCGAB membership are extended to the following members:

Twenty-five (25) years - **Allan Campbell, Ron MacDonald, Carl Bolton, Leslie Hill, Karl Klotzbach, Denyse LeBlanc, Mohamed Samman, Norm Flaten, and Doug McGinnis.**

Forty (40) years - **Lal Kushwaha, Lyle Wright, and Ben Dyck.**

Fifty (50) years - **Ed Hudek.**

Sixty (60) years - **Bob Rae** (now actually 62 years!)

### CSBE/SCGAB FOUNDATION REPORT

Here is a brief report of Foundation donor and sponsorship activities for 2006 and to date for 2007 and the current financial situation:

#### Donations:

2006	193 donors for \$6813.80	2007	35 donors for \$754.00
	29 donors of => \$25.00		3 donors of => \$25.00

#### Sponsorships:

2006	123 UG students, 23 G students and 1 student project \$6699.00	2007	6 UG student, 4 G students and 1 student project \$754.00
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#### Foundation expenses:

2006 \$844.28 (12 %; CRA allows up to 20 %)

#### Current net cash holdings:

2007 05 23 \$ 12 649.64

#### Auditors net asset report for 2006:

2006 year end	\$13 393.00	2005 year end	\$11 566.00
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## COAST TO COAST/D'UN OCÉAN À L'AUTRE

### British Columbia Regional News

**Anthony K. Lau**

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In the past year, I started to recruit graduate students in Chemical and Biological Engineering at UBC to join CSBE as student members. However, I realize that the successful recruitment of our undergraduate students would need a different strategy. Recently, several of our long-time members have not renewed their membership. It is therefore important for me to spend more efforts to communicate with our members, and to retain and recruit full members in the coming year. One avenue to accomplish this goal is to re-establish active contacts with the alumni of Bioresource Engineering. Hopefully, we can have increased contributions to the Perspectives Newsletter from members in the academics, government agencies and industries with a larger membership.

### **JOB OPPORTUNITY BC — WASTE MANAGEMENT SPECIALIST** **Licensed Science Officer Engineer 3** **Science Technical Officer 24**

Ready for a new working adventure? Consider this high-level, challenging position in the Ministry of Agriculture, Resource Management Branch, Abbotsford, British Columbia.

This is an excellent opportunity to develop your expertise in the field of agriculture by focusing on the key aspects of agricultural waste management. The chief task of this position will be to promote the development and use of environmentally acceptable agricultural waste management and bioenergy systems, including storage, treatment and disposal of manure.

In this multi-faceted role, you will identify and resolve current and anticipated environmental issues pertaining to agricultural wastes, animal carcass and related tissue disposal and waste to energy management issues. You will be responsible for developing programs, standards and guidelines that protect air, land and aquatic resources. You will serve as expeditor and project manager for waste management and agriculture energy generation related programs and projects. Reporting to the Senior Engineer, you will be designing and carrying out technology development and demonstration projects involving applied research, prototype testing, equipment evaluations and demonstrations solving complex energy generation, waste management and nuisance problems. You will be responsible for developing and delivering up-to-date and innovative technical information to agencies and the agriculture industry regarding the management of agriculture wastes and emerging agriculture bioenergy opportunities.

You possess a Bachelor of Science Engineering Degree, specializing in waste management from a Bio-Resource Engineering, Agricultural Engineering or Civil Engineering program. Your degree is augmented with five years of work experience as a professional working in agricultural engineering systems, including experience with agricultural waste management issues and systems. You are eligible for Registration in the Association of Professional Engineers and Geoscientists of British Columbia.

The position may be under implemented in the LSO series if you have less than five years of professional experience available or at an STO 24 level if you are not yet eligible for registration in the Association of Professional Engineers and Geoscientists of British Columbia.

Please forward applications to:

Joan McGowan , Fax: 604 556-3099

Email: Joan.McGowan@gov.bc.ca , <http://www.bcpublicservice.ca/postings/applicat.pdf>

## Saskatchewan Regional News

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### Updates from the Department of Agricultural and Bioresource Engineering

**Grad Banquet:** The Grad Banquet of Agricultural and Bioresource Engineering department was held on March 16<sup>th</sup> at the University of Saskatchewan Faculty Club. It was a well attended event by graduating and not-so-graduating students, faculty, staff, families and friends.



ABE students convocating in the Spring 2007 Convocation receiving souvenir from Prof. Trevor Crowe, ABE Department Head (photo courtesy by Tanya de Rosairo)

**College of Engineering at the Draggins Rod and Custom Show:** The engineering students involved in the UofS Sled Dogs 1/4 Scale Tractor Team and the Formula SAE displayed two of the pulling tractors and several of the cars at the Draggins Rod and Custom Show held in Saskatoon on April 6 and 7. A lot of work went into the display and the students put a lot of time and effort into promoting the college and the two teams at the show. Prof. Terry Fonstad is the student advisor of the 1/4 Scale Tractor Team.

**New Faculty:** Dr. Scott Noble will join the department in July 2007 as Assistant Professor. Dr. Noble's areas of teaching and research interests are sensors, instrumentation, and spectral imaging technologies. Dr. Noble obtained his Ph.D. in Biological Engineering from the University of Guelph in 2006, M.Sc. in Agricultural and Bioresource Engineering from the University of Saskatchewan in 2002 and B. Sc. in Engineering Systems and Computing from the University of Guelph in 1999. His contact information is:

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Dr. Scott Noble



College of Engineering Display including 1/4 Scale Tractor at the Draggins Rod and Custom Show (Photo courtesy by Prof. Terry Fonstad)

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**Motorblast 2007:** The Agricultural and Bioresource Engineering Student Society (ABESS) held Motorblast 2007 on April 9<sup>th</sup>, the last day of classes of Term 2 at the Bowl. The car used this year was a 1979 Chrysler Newport. The coolant was drained from the radiator, ran at full throttle and the engine lasted for 3 min 53 s with the dipstick being shot out about halfway through giving everybody on the west side of the car a nice shower. ABESS sold tickets with purchasers making a guess at how long the car will last before the engine dies, and prizes were distributed to the best guesses. Joel Sawatzky (4<sup>th</sup> year ABE student) had the closest guess at 3 min 52 s



Motorblast 2007 (photo courtesy by Dan DeVisser, ABESS Motorblast 2007 Director)



Barbecue crew busy selling before during Motorblast (photo courtesy by Ryan Roberge)

**China Visit:** Dr. Lope Tabil visited China Agricultural University (CAU) in Beijing, China on April 10-20, 2007. While there, he delivered four lectures and attended the “International Conference on the Critical Technology of Transformation of Renewable Clean Biomass into Ethanol”. He was hosted by Prof. Decheng Wang of the Department of Agricultural Engineering of CAU. They signed a working agreement on research collaboration and exchange of students. In relation to this, Mr. Guanghui (Steven) Wang has joined the Department of Agricultural and Bioresource Engineering at the University of Saskatchewan as Visiting Scholar for 1 year.



Professor Wang (2<sup>nd</sup> from left, seated) and Dr. Tabil (3<sup>rd</sup> from left, seated) after signing the working agreement)

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**Spring Convocation:** The department had ten graduates this year at the Spring Convocation on June 5, 2007 held at TCU Place in Saskatoon. The ten graduates are: Karen Bergemann (with Great Distinction), Nicholas Broberg (with Distinction), Jeffrey Clarke, Joshua Dales, Ryan Lansdall, Dustin McCall, Garth Printz, Devin Ritter (with Great Distinction), Michelle Sander, and Sana Talebi (with Distinction). Devin Ritter was awarded the Oliver L. Symes Memorial Award and the Clinton L. Armstrong Memorial Award as the most outstanding graduate of the department.

**Earle Morton Receives CSA Award (contributed by Jim Wasserman, PAMI)**

Earle Morton, Product Safety Manager for AGCO Corporation, was presented a Canadian Standards Association award of merit on April 2, 2007 in Winnipeg. Mr. Morton provided leadership in serving for 10 years as Chair of the CSA Agricultural Machinery Technical Committee. He has been a member of the committee since its inception approximately 16 years ago. He is also a member of the Canadian Advisory Committee, ISO TC 23 and has served on several subcommittees related to national and international agricultural machinery standards.

His valuable expertise on international standards is highly important to assist the CSA Committee to operate effectively and efficiently in developing standards that best fit Canadian requirements. There are currently 27 members on the committee with representative from farming, manufacturer, regulatory and general interest. The committee currently has 36 CSA agricultural machinery standards that they have developed or adopted. These standards guide engineers to design safe agricultural machinery for use in Canada.

Earle has been working with AGCO or its family of companies such as Massey Ferguson for 40 years and has been a long term CSBE and ASABE member throughout his career. At the age of 64, he continues to maintain a very aggressive work schedule and is a credit to the profession of agricultural engineering.



Earle Morton (left) receives award from current CSA Committee Chair Ted Whitworth)

## Manitoba Regional News

### Danny Mann

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Manitoba Hydro organized an open house on March 31 at St. Francis to showcase the research project of **Qiang Zhang**, Biosystems Engineering, on solar energy greenhouses. The event was held in an experimental solar energy greenhouse and attended by over 100 people. Along with Mr. Ray Boris of Manitoba and Mrs. Lori Ann Regnier of Blue Lagoon Florascape, Qiang Zhang made three presentations on the concept of solar energy greenhouses and its potential in energy saving. A tour was also conducted by Mr. Wenkai Liu of Wenkai Oriental Vegetables farm in Elie, where three additional solar energy greenhouses have been tested.

**Jim Philp** was selected by the second year agriculture diploma students as the *Teacher of the Year*.

**Nazim Cicek** has received one of six Rh Awards from the University of Manitoba. The Rh Awards are given to researchers who are in the early stages of their research careers and who display exceptional innovation, leadership and promise in their respective fields. Each winner receives \$10,000 for future research. Nazim's research focuses on the biological treatment of wastewater, and the use of waste materials for the production of biofuels.

**Danny Mann** has received the Graduate Student's Association (GSA) Award for Excellence in Graduate Teaching from the University of Manitoba Graduate Student's Association. The award will be presented at the Annual Spring Convocation.

The CSBE/SCGAB Biosystems Engineering Awards were awarded at the Manitoba Science Schools Symposium held on the last weekend of April at the University of Winnipeg campus. In the Intermediate category, the award went to Justin Chen and Chaitanya Narenda for their project entitled "*Bioremediation of Formaldehyde in Air Using Spider Plants (Chlorophytum)*." In the Senior category, the award went to Victor Mui for his project entitled "*Ground Penetrating Radar: A Clear Way Towards Imaging Plastic Landmines*". A special thanks to Derek Inglis, Rahul Sethupathy, Sarah Kelso, and Russ Parker for serving as judges on behalf of CSBE/SCGAB.

### Research Profile – Ph.D. student Carl Pronyk

Carl Pronyk is a Ph.D. student working under the supervision of Dr. Stefan Cenkowski in the area of superheated steam processing of noodles. Experimental work was completed this fall and the thesis will be defended in July.

Superheated steam drying has been known for over 100 years, but acceptance in industry has been slow. Before industry accepts a new technology like superheated steam it must be proven to provide benefits that exceed additional costs and risks. An area where superheated steam may provide these benefits is in the area of processing where drying of a product is not the primary concern. A novel application may be to create a healthy instant noodle without frying in oil. The objective for this work was to develop a novel technique for creating instant noodles and determine the optimum processing conditions by measuring the heat and mass transfer and effects of superheated steam conditions on key physical and textural properties of noodles undergoing simultaneous drying and cooking in superheated steam.

Results of a textural profile analysis (TPA) using a textural analyzer and colour measurements showed that noodles processed at a steam velocity of 1.5 m/s and temperatures above 125°C had acceptable colour values (L\* values greater than 63, a\* values less than 0, and b\* values above 20) and moisture at or below the safe storage limit with textural properties similar to commercial instant noodles. It is thus possible to create a low fat noodle in superheated

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steam. However, sensory tests will have to be conducted with human panelists to determine the acceptability of superheated steam processed noodles to judge consumer acceptability.

### Scholarship Received

**Suresh Neethirajan**, Ph.D. student in Biosystems Engineering received an NSERC - Canada Graduate Scholarship valued at \$70,000 over 24 months. Suresh is working with Dr. Digvir Jayas on a project to "design, fabricate and evaluate an integrated carbon dioxide-odour sensor for grain quality monitoring using microelectronics and nanotechnology."

**Suresh Neethirajan**, Ph.D student in Biosystems Engineering also received the prestigious Japan Society for the Promotion of Science Fellowship. Suresh leaves in June for Japan where he will receive an orientation on Japanese culture and research systems and pursue research in the semiconductor processes and nano-device manufacturing. Suresh will work as a Research Intern at the Department of Nanomechanics, Tohoku University on a project titled 'Fabrication of SiCN thin film using Cat-CVD and effect of mechanical properties'. Suresh is currently working with **Digvir Jayas** on his Ph.D thesis to build a grain quality monitoring sensor using nanotechnology.

**In Memory** Joanne Wong-Li passed away on March 18, 2007 following a battle with lupus. Joanne completed her undergraduate degree in Biosystems Engineering in 1999 and a master's degree in 2003 under the supervision of Qiang Zhang. Joanne had been employed in Winnipeg by Dillon Consulting.

**Notice to members from Manitoba: If you have any comments or news items that you would to be included in the next issue of Perspectives, please send it to [Danny\\_Mann@umani-toba.ca](mailto:Danny_Mann@umani-toba.ca).**



Figure: Superheated steam dryer used to determine the physical and textural properties of noodles.

## UNDELIVERABLE EMAIL ADDRESSES!

If you recognize any of the eml addresses below, please help with the newsletter distribution by advising the publisher at [bioeng@shaw.ca](mailto:bioeng@shaw.ca) . Thank you.

[robert.beaulieu@agr.gouv.qc.ca](mailto:robert.beaulieu@agr.gouv.qc.ca)  
[lccl@sasktel.net](mailto:lccl@sasktel.net)  
[khizanch@gmail.com](mailto:khizanch@gmail.com)  
[braeview@island.net](mailto:braeview@island.net)  
[mjp284@mail.usask.ca](mailto:mjp284@mail.usask.ca)

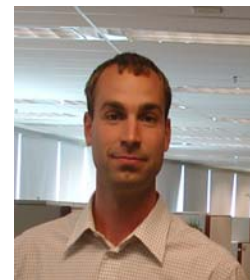
[bta264@mail.usask.ca](mailto:bta264@mail.usask.ca)  
[bwest@rttinc.com](mailto:bwest@rttinc.com)  
[ray.guerin@netco.ca](mailto:ray.guerin@netco.ca)  
[ccsl@escape.ca](mailto:ccsl@escape.ca)  
[mandy-wilson@uleth.ca](mailto:mandy-wilson@uleth.ca)

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[Imad.Haffar@nakheel.com](mailto:Imad.Haffar@nakheel.com)  
[gordon\\_kent@enr.usask.ca](mailto:gordon_kent@enr.usask.ca)  
[misenerg@jot.nb.ca](mailto:misenerg@jot.nb.ca)  
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## Ontario Regional News

### Jake DeBruyn

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### Workshops Held on Environmental Technology Assessment and Energy Cogeneration

Agriculture and Agri-Food Canada (AAFC) Research Branch held two workshops in Ottawa in March to review projects supported under two National Programs supporting Research & Development in technology implementation.

A Mid-term Review Workshop for the five-year (2003-2008) Environmental Technology Assessment for Agriculture (ETAA) Program was held on March 22. Innovative technologies that help conserve, maintain and enhance natural resources associated with agricultural production, and help reduce contamination of soil water and air, and adverse impacts on biodiversity, are being investigated in twelve projects. Life cycle and economic analyses of the technologies are underway as a part of project assessment.

A Final Workshop for the Energy Cogeneration from Agricultural and Municipal Wastes (ECoAMu) Program was held on March 23. This four-year (2002-2006) Program was funded by the Climate Change Action Plan through Natural Resources Canada. It was aimed at mitigation of Greenhouse Gas (GHG) emissions, and improving production efficiency and resource conservation in agriculture by establishing demonstration plants for energy cogeneration from agricultural and municipal wastes. Four projects on anaerobic digestion of, and nutrient recovery from animal manure and one project on gasification of agricultural waste straw and sorted municipal wastes were supported. The two workshops provided an opportunity for project proponents to inform workshop participants (including agricultural engineers, industry leaders, producers, government policy makers and researchers) about project results and achievements, and to discuss needs for commercialization of the technologies developed. Information about the two workshops is available from Tim Martin ([martinti@agr.gc.ca](mailto:martinti@agr.gc.ca)) at AAFC in Ottawa.

## Quebec Regional News / Nouvelles régionales du Québec

### Stéphane Godbout

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Un chercheur allemand de la station fédérale FAL à Brunswick, Dr. Heiko Georg, est venu passer un séjour au Québec. Dans le cadre de ce séjour, il a travaillé avec les ingénieurs Stéphane P. Lemay, Stéphane Godbout et Frédéric Pelletier pour mettre en place un projet conjoint dans le domaine des systèmes de production vaches-veaux. Il reviendra au Québec en septembre 2007 pour finaliser la mise en place du projet.

Yves Choinière, ing., agr. and Christian Lemay, ing. are working on the development of novel reinforcement methods for the concrete walls of the deep pit dairy barns. The aims of this work is to secure 6 to 8 cm of concrete covering above the structural steel rebars.

Yves Choinière ing., agr. et Christian Lemay, ing. travaillent présentement au développement de nouvelles méthodes pour le renforcement des murs de béton des étable laitières à cave profonde. Un des aspects étudiés est le recouvrement de l'armature.

## ANNUAL REPORTS

### Report from the CSBE/SCGAB President ( Shahab Sokhansanj)

#### General Comments

Our CSBE/SCGAB continues to be a vibrant learned Society in Canada. The current membership is 735 with 459 full members, 179 undergraduate and 90 graduate students, and 7 nonresidents. The numbers have dropped slightly from a high of 750 in 2006 due to a decrease in the number of undergraduate students. Our 18-member Council is active with representation from every region of the country. The following is a list of Council activities in 2006-2007.

#### Meetings

- ... The Council held two face-to-face meetings and four teleconference meetings throughout the year.
- ... The CSBE/SCGAB will hold its 2007 Annual General Meeting in Minneapolis to participate in the Centennial of the ASABE. CSBE/SCGAB's two Council meetings and AGM will be held in Minneapolis. Major awards ceremonies will be conducted jointly with the ASABE. Students' paper and design awards were not included in this year's agenda.
- ... The President of CSBE/SCGAB has a seat on the ASABE Board of Trustees. The President attended two Board meetings, one held in Chicago December 8, 2006 and one in St. Joseph Michigan, April 20-21, 2007.
- ... CSBE/SCGAB will have its annual meeting in 2008 in North Vancouver, July 13-17, 2008. The 2008 meeting coincides with the 50<sup>th</sup> anniversary of the CSBE/SCGAB
- ... The CSBE/SCGAB's 2010 meeting will be held jointly with CIGR in Quebec City, Quebec.

#### Completed tasks

- ... A new promotional and student recruitment brochure in both languages was developed for distribution. Copies were distributed to various organizations and are available on request.
- ... A new vice president position for Membership was created. Grant Clark from the University of Alberta has filled the position.
- ... Past President John Feddes completed the revision of the operations manual. The new version is on the web.
- ... The Webmaster has updated the Society's website. All announcements will have an expiry date and will not reside on the website longer than 3 months after the expiry date. Members of the Council are responsible for the accuracy of pages and information that relates to their area. The Past President's task is to conduct a periodic review of the website for any updates.
- ... Council voted approval for the editor of the Canadian Biosystems Engineering Journal (CBEJ) to seek signatures of the corresponding author in lieu of those co-authors who could not be contacted. The Editor or a designate is to be authorized to allow the replacement of a full conference paper posted on the CSBE/SCGAB website with the abstract and a reference to the location of the published paper provided that the published paper contains a reference to the original CSBE/SCGAB conference paper.
- ... The Council approved students in an engineering program focusing on agricultural, food, environmental, and biological systems to be eligible to receive free student membership in the CSBE/SCGAB during the first year, receive 66% discount during the second year, 33% during the third year and 0% after the third year of membership. The approximate cost to CSBE/SCGAB is \$1200 per year. The VP (Membership) will assist in the implementation of this practice.
- ... A member aged 65 or more who has retired from professional life but who wishes to maintain professional contact with the CSBE/SCGAB may be invited to become a 'Member Emeritus of CSBE/SCGAB for an annual ASABE fee (\$56 in 2007). Members Emeritus will receive the CSBE/SCGAB Perspectives Newsletter in electronic format. This requires a bylaw change and approval at the AGM 2007 in Minneapolis.
- ... The organization of the Technical Committee will be changed. Vice President Zhang proposed a new structure to be made up of a four-person executive (Vice President Technical as chair) and seven members repre-

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senting various disciplines. This requires a bylaw change and approval at the 2007 AGM in Minneapolis.

... The Council gave approval to join the Engineering institute of Canada on an annual (trial) basis.

### **In Progress**

... A draft of visions and missions, goals, and metric were developed for the CSBE/SCGAB. The draft plan will be discussed in a special general member meeting in Minneapolis.

... The Council is debating the merit of joining the Agriculture Institute of Canada (AIC). The Council is planning to make a decision in Minneapolis.

... A Committee was struck to review the Society's awards especially with regards to the terms of reference and procedures. The work of this Committee will continue in the 2007-8 Council.

... Development of a contingency fund or strategic reserve for CSBE/SCGAB is to be investigated.

... Grant Clark, the new Vice President membership will be conducting an in-depth analysis of the status and trends of CSBE/SCGAB membership.

... Liability insurance status for members and/or directors of the CSBE/SCGAB is under investigation (John Morgan).

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## Report of the Vice-President Membership (VP (Membership) Grant Clark)

### Mandate of the VP Membership

The Vice President Membership of the Canadian Society for Bioengineering (the Society) is a new executive office which was created in 2006. The mandate of VP Membership is to maintain and increase membership in the Society. In order to do this, the Society must effectively define and communicate a clear and relevant identity to current and potential members, successfully identify the needs of that membership, and provide services to fulfill those needs. Excellence in these tasks will ensure a thriving professional organization. Mediocrity will erode the Society's relevance, and members will abandon it for other, more responsive organizations.

Specific activities for which the VP Membership is responsible, as described in the Society's Procedures and Operations Manual, include:

- ... Chair the Membership Recruitment Committee, receiving reports from the Regional Directors and reporting to Council on recruitment activities;
- ... Submit to the Council a list of members whose fees have remained unpaid;
- ... Act as Regional Director in the interests of members outside of Canada;
- ... Work with the Local Arrangement Committees to offer professional development courses at Annual meetings;
- ... Identifying members that should be recognized for 25, 40, 50, etc. years of membership and prepare certificates;
- ... Develop other services that may benefit members;
- ... Liaise with university student advisors;
- ... Oversee student paper competition and awards;
- ... Maintain membership lists;
- ... Maintain contact with retired members.
- ... Evaluate the benefits of Society membership in umbrella organizations.

Many of these activities have not yet been transferred to the to the V.P. Membership in practice, and are currently performed by the Secretary, Regional Directors, Local Arrangements Committees, or ad hoc by other members of the Council. When the consolidation of these activities in the portfolio of the VP Membership is complete, the Society will be better able to respond to the changing needs of an evolving membership in today's rapidly changing, increasingly bio-based economy.

### Membership Trends

ASABE currently collects and maintains information about all members; this includes all CSBE/SCGAB members because Canadian dues cover membership in both the Canadian and American societies. Records of CSBE/SCGAB membership are forwarded by ASABE to the Society at the end of each fiscal year. On the basis of that information, some preliminary analysis has been done to track trends in the Society's membership, similar to the way in which the ASABE tracks its membership. A comparison of Society membership for the years 2002 and 2007 is presented in the accompanying figures.

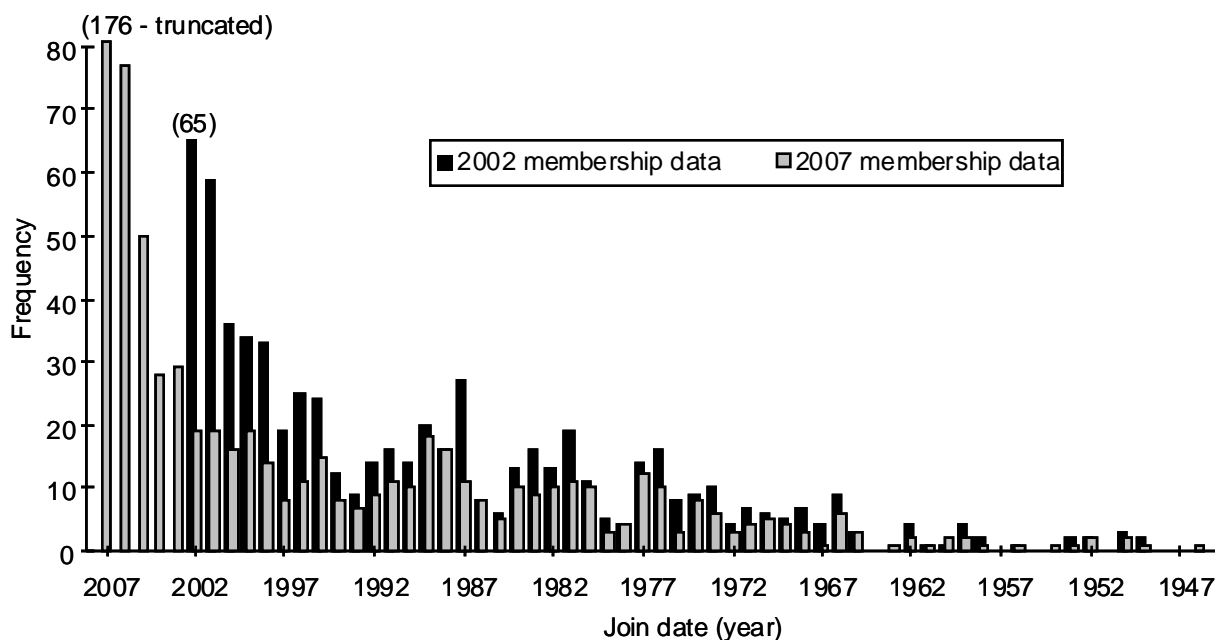
Referring to the 2002 membership data in Fig. 1, the number of new members (joined year 2002) was 65, 48 of whom were students, for a total membership of 642. Membership retention for the 2002 cohort was 30% over the first 5 years of membership. In 2007, the number of new members was 176, nearly three times as large as in 2002, for a total membership of 727. This strong growth, as noted below, appears to be due to the redefinition and expanded focus of university programs and the increased involvement of students and professionals from 'emerging' areas of practice. A continuing challenge for the Society will be to encourage these new members to become involved so that they themselves can help to increase the value of their Society.

The proportion of new members who are already established in their careers and who consider the Society relevant enough to join has increased. In 2007, 70 (40%) of 176 new members were non-students, as compared with 26% in 2002. It is important that the Society clearly identify the reasons for this increasing trend and open an active dialog with these new professional members, to ensure that their expectations of the Society are fulfilled. The new members

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themselves should be encouraged to play an active role in developing the services that they require.



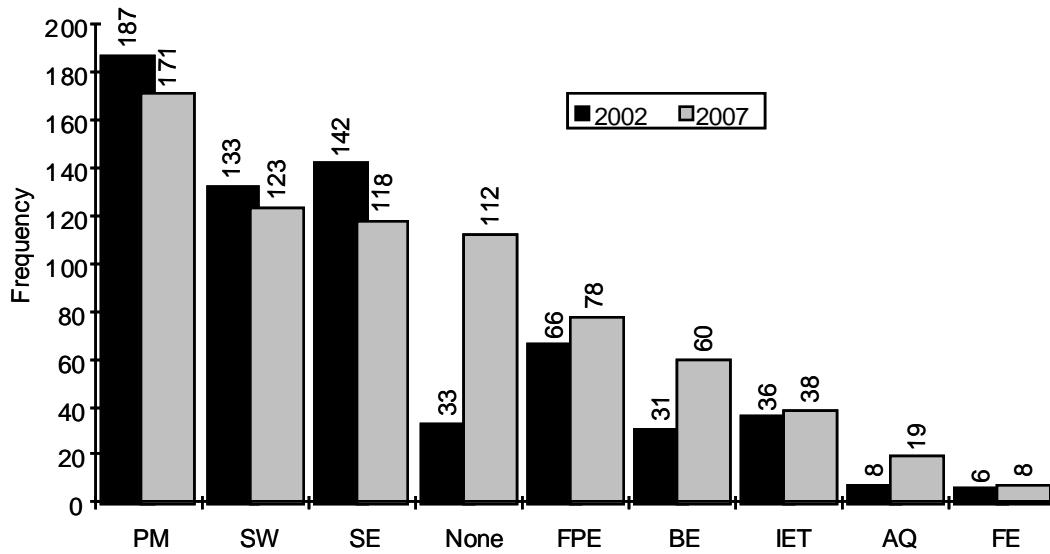
**Fig. 1. Membership data from 2002 and 2007, ordered by cohort. Comparison of the paired 2002 and 2007 for each cohort (join date) indicates membership retention over this 5-year period. For instance, the 2002 cohort had 65 (new) members in 2002 and 19 members in 2007; retention for the 2002 cohort over this period was 30%.**

Fig. 2 (next page) shows a shift of the overall membership away from traditional areas such as power and machinery and soil and water. Although the majority of the membership still identifies these technical areas as being of primary interest, the number that identify with other areas, such as food and process engineering, biological engineering, and aquaculture, have grown. This trend is especially evident in the new membership. Although most new student members do not indicate areas of technical expertise, new non-student members in 2002 indicated diverse areas, with the largest number in power and machinery. New non-student members in 2007, however, were predominantly involved in biological engineering (15), food and process engineering (10), and aquacultural engineering (8). The Society is challenged to actively involve such new members so that their diverse needs can be met effectively.

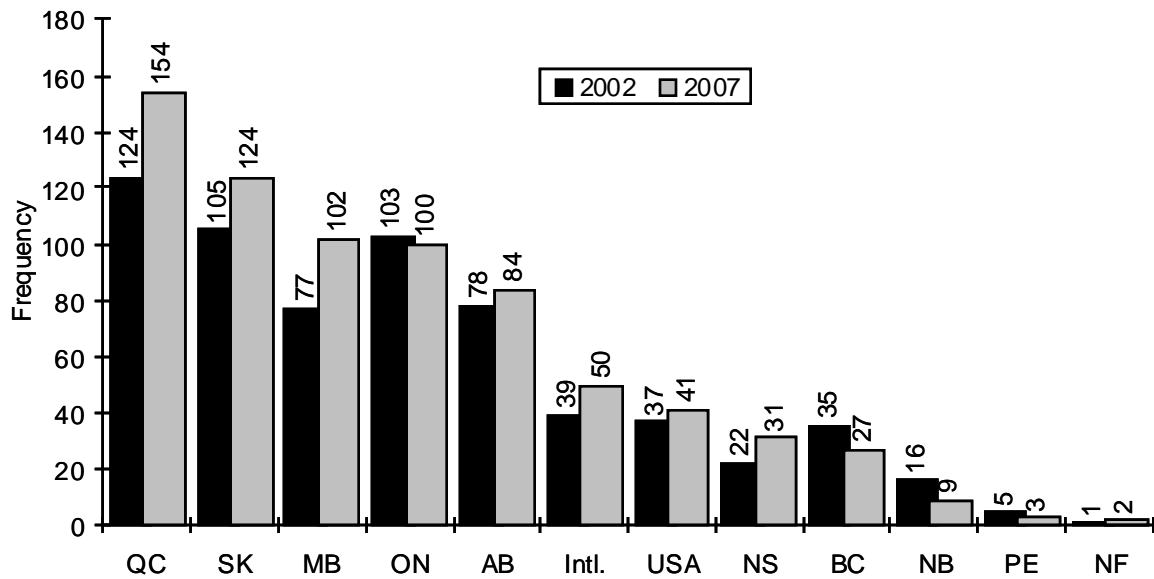
Finally, the geographic distribution of the membership (Fig. 3, next page) influences the types and the delivery of services that the Society should provide. The largest membership growth has been in Quebec, emphasizing the need for francophone members maintain their strong involvement in the Society, and to ensure effective delivery of services in French. The regions with the next largest growth were Saskatchewan and Manitoba. There has also been a substantial increase in international members, which emphasizes the role of the VP Membership as the equivalent of Regional Director for international and American members.

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**Fig. 2. Membership data ordered by primary area of technical expertise: PM (power and machinery), SW (soil and water), SE (structures and environment), FPE (food and process engineering), BE (biological engineering), IET (information and electronics technology), AQ (aquacultural engineering), FE (forest engineering).**



**Fig. 3. Membership data ordered by geographic region.**

### Identity of the Society/Profession

The articulation of the identity of the Society, and of the bioengineering profession in general, is an ongoing challenge, largely because bioengineering is defined more by its area of application rather than by a specific body of expertise. Since the potential area of application is broad and its scope is still somewhat contentious, the potential membership is similarly diverse and its extent is also ill-defined.

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To develop the Society's strategic plan, the Council has organized an open workshop to articulate the Society's vision, mission, and strategic goals. The workshop will be held in conjunction with the Annual General Meeting in Minneapolis, on Tuesday, June 19, from 12:00-13:30.

A related issue which the Society must monitor is the use of the terms *bioengineer* and *bioengineering* by granting agencies and accrediting bodies. President Sokhansanj has reported that the use of these terms by the ASABE is now problematic because they are already recognized by some US granting agencies and accrediting bodies in reference to biomedical engineering. Although there is not yet any similar conflict in Canada, the profession in this country must strive to harmonize its terminology with that of our American counterparts, in order to ensure public and industry recognition of the profession and the Society.

### **Recruitment Activities**

- ... Registrants at the 2006 Society meeting in Edmonton who were not Society members, including non-students and students in non-engineering programs, were offered a free one-year membership. Twenty-eight students and 17 non-students accepted this offer.
- ... The student membership subsidy, which formerly covered the entire membership for the first year, has been extended. Fees for students in an engineering program focusing on agricultural, food, environmental, or biological systems will be fully subsidized during the first year of study, 2/3 during the second year, and 1/3 during the third year. Students who remain in an eligible program of study for more than three years will thereafter be required to pay full student membership fees.
- ... New bioengineering recruitment brochures have been printed in both English and French, and are available from the Society Secretary upon request.
- ... A letter of invitation addressed to graduate students has been sent to Regional Directors and campus representatives for use in recruitment.
- ... Program heads and student advisers were asked to contact students who had not paid their dues by the financial year end, to encourage their continued membership in the Society.
- ... The Society Secretary contacted by e-mail all regular and international members who had not paid their dues by financial year end, including a cover letter from the Society President encouraging their continued membership in the Society. Regional directors were also asked to follow up with a personal telephone call to these members.

### **Other Membership Initiatives**

- ... In order to increase the visibility and the credibility of the Society, Council agreed that the Society should join the Engineering Institute of Canada on a 1-year trial basis. Council has also decided to investigate the reinstatement of the Society as a member organization of the Agriculture Institute of Canada.
- ... Currently, Society members receive certificates upon joining ASABE and for 25, 40, 50 and 60 of membership, by virtue of their joint membership in that society, as well as postcards celebrating 5, 10, 15 and 20 years of membership. The Council is considering similar recognition of membership milestones on the part of the CSBE/SCGAB.
- ... Member Emeritus - A member may be invited to become a Member Emeritus of the Society when he or she is aged 65 or more and has retired from professional life, but wishes to maintain professional contact with the Society.
- ... Because of the nature of this year's Annual General Meeting there will be no independent CSBE/SCGAB student paper competition at the Minneapolis conference.

### **Pending Initiatives**

A number of activities in the portfolio of the VP Membership have not yet been fully realized. The following are initiatives that will be pursued over the next year:

- ... Convene regular meetings of the Membership Recruitment Committee, including the Regional Directors, to plan

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- and coordinate recruitment activities;
- ... Work with the Secretary to assume responsibility for, and establish a convenient system for tracking, membership trends specific to the CSBE/SCGAB using information already collected by ASABE office;
- ... Improve dialog with new members, retired members, and those who have let their memberships lapse, in order to encourage their involvement in the Society and to better tailor the Society's services to their needs;
- ... Open a dialog specifically with members outside of Canada, to fulfill the VP Membership's role as their Regional Director;
- ... Review the idea of recognizing CSBE/SCGAB membership milestones and initiate this practice if it is deemed appropriate;
- ... Work with the 2008 Local Arrangement Committees to coordinate the organization of professional development courses, and the student paper competition.

## **PUBLISHING OPPORTUNITY**

Articles are invited for the book entitled "Emerging Environmental Technologies", to be published by Springer Publications in early part of 2008. The book provides a platform for presentation of research that focuses on novel technological breakthroughs in the field of environmental sciences. The book would contain descriptions of 12-15 novel technologies that are cutting edge and provides an "out of the box" approach for solving various environmental problems faced currently by our society. Each article in the book would provide a detailed background review on the problem and existing research or technology that is available; principle behind the novel technology proposed; comparison of the existing technology and the proposed technology elaborating on the advantages and disadvantages of the new technology; and further research that needs to be carried out. All articles will be followed by the views of the experts in the field on the proposed technology. Should there be some experiments whose methodology can not be described further in the article, the article is still invited.

Unlike existing journals and book, the primary focus of the book is not on the success of the research, but on the ideas and novel approaches. It is vital for the development of new technologies that ideas that are unique be presented to the scientific world. The audience for the book includes industries, academicians and governmental/non-governmental agencies in the field of environmental sciences and technology.

Also, we are planning to have a workshop where NGOs, Governmental organizations and leading scientists can have exchange of ideas. All authors whose articles will be published in the book will be invited to present their work in the conference.

Kindly contact the Editor, Dr. Vishal Shah at [ShahV@dowling.edu](mailto:ShahV@dowling.edu) or by phone at 631-244-3339 by June 5, 2007 if you wish to submit an article.

## Manitoba Regional Report (Danny Mann, Manitoba Regional Director)

For the first time in many years, the presentation of design projects by undergraduate Biosystems engineering students was not promoted as a CSBE Regional Meeting. Over the past couple of years, no CSBE members have attended the presentations so it was assumed that there was no interest. If Manitoba members of CSBE have a desire to be informed of special events in the Department of Biosystems Engineering (i.e., design presentations, undergraduate thesis presentations), please let me know.

We continue to have a presence at the provincial Science Symposium. The CSBE/SCGAB Biosystems Engineering Awards were awarded at the Manitoba Schools Science Symposium held on the last weekend of April at the University of Winnipeg campus. In the Intermediate category, the award went to Justin Chen and Chaitanya Narenda for their project entitled "*Bioremediation of Formaldehyde in Air Using Spider Plants (Chlorophytum)*." In the Senior category, the award went to Victor Mui for his project entitled "*Ground Penetrating Radar: A Clear Way Towards Imaging Plastic Landmines*". Certificates and cash prizes were distributed by Qiang Zhang (Vice-President Technical). A special thanks to Derek Inglis, Rahulan Sethupathy, Sarah Kelso, and Russ Parker for serving as judges on behalf of CSBE/SCGAB.

The trend in undergraduate enrolment in the Department of Biosystems Engineering at the University of Manitoba has continued to be positive. Over the past 4 years, the Department has averaged approximately 25 new undergraduate students entering the Department each September. Only a few of these students have an interest in the traditional areas of agricultural engineering (based on informal surveys that are conducted when these students enter the Department). There seems to be an even split between students interested in the environmental area and those interested in medicine/biomedical engineering. As a consequence, the Department is continuing to introduce new courses that fit within the area of biomedical engineering.

During the past year, the Department of Biosystems Engineering grew by one professor. As reported in a previous issue of Perspectives, Dr. David Levin joined the Department as an Associate Professor. David joined the University of Manitoba in September 2006 to establish an advanced biotechnology laboratory dedicated to "bioengineering for biofuels production". The research will focus on developing methods to enhance biofuel (ethanol and H<sub>2</sub>) synthesis from wheat starch and cellulosic biomass. David is part of a team of researchers supported by an NSERC Collaborative Research and Development grant with Husky Energy as the industrial partner.

Recently, copies of the promotional brochure were sent to a number of Manitoba companies that work in fields relevant to the Society. In some cases, these companies are known to employ Agricultural or Biosystems engineers, but none of these employees are members of CSBE. It is hoped that people within these organizations will be introduced (or re-introduced) to the benefits of CSBE.

### SUMMARY OF CSBE/SCGAB MEMBERSHIP NUMBERS FOR 2007 2007 04 30

Member type	2006 count	2007 count
Nonresident	3	7
Regular member	474	466
UG student	211	182
Grad student	81	90
Totals	750	745

## NOTICES TO MEMBERS

From time to time various agencies request that the CSBE/SCGAB office supply the list of members for the distribution of certain products. Your Secretary, James Townsend, is reluctant to do so since we all have too much spam as it is. My approach will be to list the agencies, and their products, in each Perspectives Newsletter so that members can make personal contact with the agencies if they so wish.

... **Urban Agriculture News.** This publication is updated daily from the world's news resources for relevant articles and can be viewed at [www.urbanagriculture-news.com](http://www.urbanagriculture-news.com).

... **The Second International Virtual Agricultural Exhibition.** You can visit the exhibition by signing on to the internet at: [www.agriahead.com](http://www.agriahead.com). Have a nice tour!

... **UNESCO-EOLSS Reference Encyclopedia.** This virtual dynamic library has been posted to the web at the onset of the 60th Anniversary of the UN and UNESCO and to lead off the Decade of Education for Sustainable Development. Visit at: [www.eolss.net](http://www.eolss.net)

### Notice for the latest CIGR Newsletter

You can view the latest CIGR Newsletter at: [www.cigr.org/newslett/nl76.htm](http://www.cigr.org/newslett/nl76.htm)

### Notes for the ASABE AIM 2007 - Minneapolis June 17-20

Many readers will be aware that the CSBE/SCGAB Annual General Meeting and Technical Conference have been slotted into the ASABE AIM 2007 in conjunction with celebrating 100 years of ASABE. The Centennial events can be checked out at [www.asabe.org/meetings/aim2007/index.htm](http://www.asabe.org/meetings/aim2007/index.htm) by selecting "Centennial activities." It sounds like a great party!

One event that you will not want to miss is the **CENTENNIAL GALA DINNER**. Before completing your meeting registration, reserve your place at the Centennial Gala Banquet. With award-winning cuisine, ASABE luminaries and landmark events, and Centennial commemoratives for each guest, this event promises to be a "can't-miss memory maker." Tickets are only US\$50, tax and gratuity included. A very limited supply of tickets will be available on site. Avoid the disappointment of a "sold-out" experience.

The preliminary program for the **DAIRY HOUSING CONFERENCE** is hot off the press. To get a sneak peak go to [www.asabe.org/meetings/07dairy/index.htm](http://www.asabe.org/meetings/07dairy/index.htm) to see the technical program outline, speakers and technical tours. This conference overlaps and benefits from the scheduled programming associated with the Annual International Meeting in Minneapolis June 16-18.

On Thursday, May 4, the most current list of paper presentations for the **AIM 2007 Technical Program** went online. To view the list, with authors and presentation schedules, go to [www.asabe.org/meetings/aim2007/index.htm](http://www.asabe.org/meetings/aim2007/index.htm) and select "Technical Program."

## Coming Events

### ... 2007

- ... **ASABE 10th Annual International 1/4-Scale Tractor Design Competition**, 2007 05 31 to 2007 06 03, Expo Gardens, Peoria IL. For more information contact [hueninkbrian@johndeere.com](mailto:hueninkbrian@johndeere.com).
- ... **Sensors and Nanotechnology Conference**, 2007 06 15-17, Minneapolis MN. For more information contact [mcknight@asabe.org](mailto:mcknight@asabe.org).
- ... **Sixth International Dairy Housing Conference**, 2007 06 16-18, Minneapolis MN. For more information contact [mcknight@asabe.org](mailto:mcknight@asabe.org).
- ... **ASABE Annual International Meeting (Centennial)**, 2007 06 17-20, Minneapolis, MN. Contact <http://www.asabe.org/meetings>.
- ... **NABEC Annual Meeting**, 2007 07 29 to 2007 08 01, Ohio ARDC, Wooster Ohio. For more information contact Rebecca Lowry at [rebecca.lowry@oh.usda.gov](mailto:rebecca.lowry@oh.usda.gov).
- ... **International Symposium on Air Quality and Waste Management for Agriculture**, 2007 09 15-19, Broomfield, Colorado. More information at [www.asabe.org/resource/asabevents.html](http://www.asabe.org/resource/asabevents.html).
- ... **The 50th Anniversary Meeting of the Korean Society of Agricultural Engineers**, 2007 10 18-22, Seoul, Korea. Contact In-Hoe Lee for more information at [iblee@snu.ac.kr](mailto:iblee@snu.ac.kr).
- ... **11th National Symposium on Individual and Small Community Sewage Systems**, 2007 10 20-24, Warwick RI. More information at [www.asabe.org/resource/asabevents.html](http://www.asabe.org/resource/asabevents.html).
- ... **International Agricultural Engineering Conference**, 2007 12 03-06, Bangkok, Thailand. For abstract submission contact [aaae@ait.ac.th](mailto:aaae@ait.ac.th) immediately, (or [emann@ait.ac.th](mailto:emann@ait.ac.th)).

### ... 2008

- ... **AgEng2008 International Conference on Agricultural Engineering & Industry Exhibition**, 2008 06 23-25, Hersonissos, Crete, Greece. More information at [www.ageng2008.com/index.html](http://www.ageng2008.com/index.html).
- ... **ASABE Annual International Meeting**, 2008 06 29 to 2008 07 02, Providence, Rhode Island, USA.
- ... **CSBE/SCGAB AGM & Technical Conference**, 2008 07 13-17, Vancouver BC. More details to follow at [www.bioeng.ca](http://www.bioeng.ca).
- ... **CIGR International Conference of Agricultural Engineering**, 2008 09 01-07, Rio 2008, Brazil, More information at [www.acquacon.com.br/cigr\\_rio2008](http://www.acquacon.com.br/cigr_rio2008).

### ... 2010

- ... **The XVII CIGR World Congress 2010**, 2010 06 16-23, Quebec City , QC Canada. More information at [www.bioeng.ca/Events/CIGR/index.htm](http://www.bioeng.ca/Events/CIGR/index.htm).

### ... 2014

- ... **The XVIII CIGR World Congress 2014**, 2014 09 ??, The Beijing International Convention Center, Beijing China. More information to follow.

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