University of Toronto

FACULTY OF APPLIED SCIENCE AND ENGINEERING
FACULTY COUNCIL

Minutes of the Faculty Council

Wednesday May 28, 2008

12:10 - 2:00 p.m.

Michael E. Charles Council Chamber, Galbraith Building

Present:

Yu-Ling Cheng (Speaker)
Tarek S. Abdelrahman
B. J. Adams
J. Stewart Aitchison
D. Grant Allen
Cristina Amon (Dean)
Johnathan Asmis
Victor Castellino
Michael Charles
Will Cluett
Chris Damaren
Levente Diosady
Khoung Doan
Greg J. Evans
J. Foster
Ike Goodfellow
M. Gruninger
D.W. Kirk
Eva Kuhn
Raymond Kwong
J.D. Lavers
Brenda McCabe
Susan McCahan
Barbara McCann
Liam Mitchell
Javad Mostaghimi
Austra Ozolins
Jeff A. Packer
Joe C. Paradi
Doug Perovic
Ampy Pural
Doug Reeve
Jonathan Rose
Anthony Sinclair
Ronika Srdic
M. Stickel
A. Tran
Frank Vecchio
Ron Venter
Chris Yip
Wei Yu

Guests:
Estina Boddie
Kate Brand
Sybil Derrible
Linda Espeut
Carolyn Farrell
Muhammed Habib
Doug Hooten
Jen Hsu
Margaret McKone
Tom Nauft
Damen Panesar
Lisa Romkey
Peter Weiss

1. Report of the Dean

a) Senior Appointments / Searches

Dean Cristina Amon announced the senior appointments that had been made since the February Council meeting:

Professor Paul Santerre, Director, IBBME, effective September 1, 2008.
Professor Chris Damaren, Vice-Dean, Graduate Studies, effective March 1, 2008.
Ms. Vanessa Abaya, Executive Director, Advancement, effective April 7, 2008.

b) 2007/08 Strategic Priorities

i) Engineering and Public Policy Task Force

Led by Professor Doug Reeve, the mandate of this Dean's Task Force is to build awareness of the intersection of technology and public policy through:

- panel discussions,
- focus groups for alumni/ae and students,
- a student survey and
- a review of undergraduate and graduate programs.

This Task Force has been hard at work and Professor Reeve has made a preliminary presentation to Chairs and Directors, signalling many positive directions in which the Faculty can progress in this area.

The Dean commented that she is encouraged by the positive dialogue thus far and looks forward to continued discussions and the final report.

ii) Globalization Task Force

Led by Professor Yu-Ling Cheng, this group has been working hard to provide recommendations on how we can better prepare our graduates for a globalizing workplace, and how our research activities should be influenced by and proactively address global challenges.

The Dean noted that the Faculty has the opportunity, the responsibility and the unprecedented potential to become a major contributor in educating global Engineering leaders and addressing the globalization challenges of Engineering competitiveness, sustainability, and international development.

On May 15, the Task Force organized a panel discussion where distinguished panelists discussed their perspectives on global competition, sustainability and international development.

The Dean noted that the thoughts of members of the Faculty are crucial to the issue of globalization and engineering, and that their input on the Task Force deliberations would be sought.

1. Report of the Dean (cont'd)

b) 2007/08 Strategic Priorities (cont'd)

iii) Focus on Energy

Starting in 2008/09, students in the Division of Engineering Science will have the choice of majoring in Energy Systems, a dynamic new program developed in response to our changing world.

In the Faculty's continuing quest to address today's issues and challenges, the Division of Environmental Engineering has expanded and enhanced its mandate to tackle alternative energy sources and systems. This is reflected in its new name - Division of Environmental Engineering and Energy Systems.

The Faculty's robust research endeavours in this field will be further enhanced and showcased by the creation of an Energy Research Network and a day-long Energy Showcase, to be held June 19. Everyone is invited and encouraged to actively participate in this event.

The new faculty who have been hired in the energy area in the past year will be contributing to this field. As well, facilities have been upgraded.

Minors in Energy and Environmental Engineering are in the initial development stages and will be brought to the Faculty Council in 2008/09, following appropriate consultation, including consideration by the Curriculum Committee.

c) Undergraduate Recruitment and Admissions

While final figures are not yet available, thus far, the student applicant pool for Fall 2008 amounts to 7,185 -- an increase of 11% in Ontario applications for first choice to Engineering and overall increase of over 7% from last year. There is also a 4% increase for out-of-province applications.

The Dean thanked all involved for their efforts and congratulated them on their success.

With the exception of the double cohort in 2003 (7,454 applications) this is a historic high for the Faculty, allowing a greater degree of selectivity in the admissions process, which in turn guarantees that the incoming class is of a higher calibre with greater potential. This year's application cut off mark has been raised to 82% reflecting the success of the Faculty's outreach and recruitment efforts.

Because applications are up and target enrolments were decreased, the Faculty is able to be highly selective in admissions decisions.

- minimum cut off mark is at 82%, up from 80% last year;
- average is at 89%, up from 86% last year;
- Engineering Science average is 93%.

1. Report of the Dean (cont'd)

c) Undergraduate Recruitment and Admissions (cont'd)

The new Galbraith Scholars Program has also contributed to the recruitment of excellent students by providing them with enhanced recognition and first choice student housing, in addition to scholarships.

The Dean congratulated everyone involved with the Track One program. Just completing its initial year, this program has enjoyed tremendous success and its students outperformed most of their peers in other programs.

d) Graduate Studies

The Faculty has introduced the Entrepreneurship, Leadership, Innovation and Technology in Engineering (ELITE) certificate along with the MEng. It is intended for engineers whose hearts are in engineering, but who want to take a leadership role in innovation and their technical environment; to motivate their teams, foster and manage innovation, and embrace global opportunities.

Ten courses have been approved at the APS Faculty level and some offerings will take place on Saturdays and for 2 weeks over the summer, in addition to during the regular term.

In the coming years the Faculty will continue to seek to increase graduate student enrolment – primarily in the professional masters degree programs – while also decreasing undergraduate enrolment so that it moves toward the goal of 40% graduate / 60% undergraduate (currently 23% / 77%)

e) Advancement

The Faculty's Senior Academic Leadership Team has been working on fundraising priorities and has developed a major gift case for support.

This document is being finalized and will be sent to the Provost for approval. Departments have also been working on their cases for support.

The newly constituted Dean's Advisory Board on Academic Matters, chaired by Paul Caderio, held its inaugural meeting this spring.

In addition, the Dean has created the Dean's Council for Strategic Development, which will be chaired by George Myhal, IE Alumnus and Managing Partner, Brookfield Asset Management.

1. Report of the Dean (cont'd)

f) Convocations

The Dean reminded members that the Faculty's convocation ceremonies will be taking place on Monday, June 16. She encouraged all members to participate in the convocation procession.

g) Awards and Honours and Research Funding

Awards and Honours

The Dean reported that it had been a milestone year for faculty with respect to honours and awards, and thanked the Committee chaired by Professor Emeritus Michael Charles, and all the departmental efforts.

A report of these accomplishments was distributed at the door, and is attached as an appendix to these minutes. In celebration of these successes and research grants, the Faculty will be holding a reception on June 12 from 5-7 at Hart House.

The Dean expressed her pride in the Faculty's progress in this area and stated that she will continue to ensure that the talent within Engineering receives its long-overdue recognition. This will also help to increase the Faculty's visibility in Canada and around the world, which will enable the recruitment of the best and brightest students and faculty.

h) Research Funding

The Dean reported that the Faculty had received $58 million [subsequently revised to 60.1 million) in research funding during the past year. Tri-Council (mostly NSERC) funding has continued to increase and peaked at $18.8 million. More effort was being put towards Industrial funding, which will also facilitate the increase of government research funds since many provincial and federal funding sources require industrial partnership.

2. Approval of the Minutes of the Previous Meeting

The minutes of the meeting held on February 25, 2008 were approved.

3. Business Arising

The Speaker, Yu-Ling Cheng, reminded members that a proposal to rename the "Options" in the Engineering Science Program to "Majors" was approved at the February meeting. This proposal was approved by the Committee on Academic Policy and Programs, and the change will be implemented for Engineering Science students who will be graduating this June.

4. Degree Level Expectations
(Arising from the Curriculum Committee)

Grant Allen, Vice-Dean Undergraduate, explained that, as part of the Quality Assessment framework, the Province of Ontario required all first-entry programs in Ontario Universities to provide degree level expectations by the end of June 2008. The proposed degree level expectations reflect current practice in the Faculty, as described in the Calendar. The expectations were reviewed by the Curriculum Committee, the Provost's Office, and the Executive Committee of the Faculty Council.

A member asked how expectations would be measured. Professor Allen replied that programs would have to show how the expectations are being achieved. The degree expectations would have to be addressed during the curriculum review and development of new programs. It was noted that the accreditation process may help the Faculty.

A member commented that he hoped that the province would not use the Degree Level Expectations in a way that would lower standards for graduation.

After discussion, two amendments were proposed to the Degree Level Expectations for Graduates Receiving the Degree of Bachelor of Applied Science:

Section 2.2 1.e: 'and/or' replaced 'or', and the section was amended to read:

> e. Capstone course(s) in Years 3 and/or 4 with strong integrative, design and independent work elements.

Section 3.6: 'requires' was changed to 'expects' and the final sentence was revised to read:

> Finally, in completing their course requirements, the Faculty expects strict adherence by students to the *Code of Behaviour on Academic Matters*, which requires students to not tolerate or encourage the creation of an environment of cheating, misrepresentation or unfairness.

On motion duly moved and seconded

It was resolved

THAT the *Degree Level Expectations for Graduates Receiving the Degree of Bachelor of Applied Science*, as amended, be approved.

THAT the *Degree Level Expectations for Graduates Receiving the Degree of Bachelor of Applied Science in Engineering Science* be approved.

5. Engineering Science: Infrastructure Option - Revisions
(Arising from the Curriculum Committee)

Professor Cluett highlighted the key changes that were being proposed:

- a stronger foundation in 3rd year with a better balance between structures and transportation;
- the repositioning of the capstone design course;
- the grouping of electives to allow students to specialize in 4th year, and
- a proposed new link with Architecture.

The revised curriculum was developed by the Department of Civil Engineering, based on several years of experience with the Option. The proposed changes have resulted in an increased number of students in 2008/09.

On motion duly moved and seconded

It was resolved

THAT the changes to the 3rd Year of the Infrastructure Option of the Engineering Science program be approved.

6. Engineering Alumni Honours and Awards Committee: Recommendations for Hall of Distinction

Professor Venter explained that the Committee met two or three times this year, and made recommendations for the Engineering Hall of Distinction, Engineering Alumni Medal, and the 2T5 Mid-Career Award. The names of all winners of these awards are on the Faculty's web site (http://www.engineering.utoronto.ca/informationfor/alumni/awards.htm). Members were encouraged to attend the annual Alumni Awards Dinner, which will be held on Thursday, November 6, 2008 at 89 Chestnut Residence.

On motion duly moved and seconded

It was resolved

a) That the following distinguished graduates of the Faculty be inducted in the Engineering Hall of Distinction:

Ike Goodfellow 1953 Elec
Lorne Mitchell 1953 Eng Phys
Brian Levitt 1969 Civil
Joey Tannenbaum 1955 Civil
Glynn Williams 1978 Eng Sci

b) That the Engineering Alumni Medal be awarded in 2008 to the distinguished graduate Phillip Yeo 1970 Industrial.

c) That the 2T5 Mid-Career Award be awarded in 2008 to the distinguished graduates:

Kathy Milsom 1983 Civil
Gino Palumbo 1983 MMS

7. Reports from Committees

Members received for information the following reports:

a) Committee on Scholarships and Awards
b) Engineering Graduate Education Committee

There were no questions.

8. Other Business

A memorial tribute for Professor Adalbert Konrad was read into the record by Professor Doug Lavers.

Adalbert (Bela) Konrad

It is with profound sadness, and sense of loss, that we note the passing of Adalbert (Bela) Konrad on Tuesday, May 13, 2008. Many of his colleagues within this institution knew him by his given name, Adalbert, but he will forever and fondly be Bela to those of us who knew him in earlier times.

He leaves his wife Ivana, his son Andrew, his daughter Caroline, as well as many, many friends worldwide. His father Francis predeceased him, as did his sister Eva.

Adalbert Konrad, son of Francis and Etelka Konrad, the latter now in her in her 94th year, brother to Eva and Julia, was born February 15, 1946 in Ordea, Romania, a town approximately 10 km from the Hungarian border. Although born in Romania, Bela remained quintessentially Hungarian. He received his early education in Romania, but completed high school in Montreal after the family emigrated when he was 17. From high school, he went on to study Electrical Engineering at McGill University, receiving the B. Eng. Degree in 1970.

Bela then entered Graduate School at McGill University, with exquisite timing, to study under the supervision of Professor Peter Silvester, a pioneer in the application of numerical methods for electromagnetic field problems, and a giant of a man. That same year, M.V.K. Chari, also a student with Pete Silvester, published his groundbreaking doctoral thesis on the application of the Finite Element Method to model static magnetic fields in electrical machines. That thesis initiated a period of explosive growth centered on the development of Finite Elements to model electromagnetic fields. Together with fellow graduate students Zoltan Csendes and Jonathan Weiss, Bela was at the center of that development, a period where major new contributions were presented at conference after conference. It was a wonderful time to be studying under someone of the stature of Pete Silvester in an area that was simply exploding with activity.

8. Other Business (cont'd)

Adalbert (Bela) Konrad (cont'd)

Bela's doctoral research centered on the application of Finite Elements to problems described by the vector Helmholtz equation. Such problems arose at both the low frequency and the high frequency end of the spectrum and, throughout his career Bela continued to have one foot firmly planted in each of those areas. The work that resulted from this doctoral research, completed in 1975, became classical within the field and lead to the development of universal elements, both 1'st order and high order, for the scalar and vector Helmholtz equations. The universal elements, in turn, led immediately to the development of general purpose software for this class of problem. At its best, mathematics has a beauty that can rival poetry and with this work; Bela was a poet.

Following the completion of his doctoral work at McGill, Bela went to work with the Building Research Group at the National Research Council in Ottawa. He remained there until 1979 when he left to join Dr. Chari at General Electric Corporate R & D in Schenectady, New York. The group that Chari assembled at G.E., later to include John D'Angelo and Gary Bedrosian among others, became one of the leading numerical modeling groups anywhere. Bela was in his element, working at the cutting edge on problems that were simultaneously of commercial interest while presenting tremendous intellectual challenge. Out of this effort came his second set of classical papers, in this case relating to eddy currents in high power multi-phase conductors. This work was recognized by the IEEE in 1995 when he was made Fellow of the IEEE "*For contributions to eddy current field computation by FE methods*".

In 1990, Bela made a transition to the academic world when he accepted an Associate Professorship within the ECE Department at the University of Toronto. He was made Full Professor in 1996. While at the university, Bela continued to have a significant impact in terms of his research, and devoted himself to the teaching of undergraduate and graduate students. As with many of us in this profession, he was not the recipient of a formal teaching award, but that did not diminish the huge efforts that he put into his teaching, or his concern for each of his students. Administratively, the ECE Department did recognize his considerable organizational skills in choosing him to lead the recent five-year Graduate Review of the department by the Ontario Council of Graduate Studies. The review went seamlessly.

Aside from research and teaching, Bela leaves a lasting legacy in terms of conference organization. In 1986, while still at GE and following the success of a similar meeting held two years previously at Carnegie Mellon University in Pittsburgh, chaired by Zol Csendes, Bela and Chari organized the IEEE Workshop on Electromagnetic Field Computation in Schenectady. Little did they realize, at the time, that this workshop would evolve to become the Biannual IEEE Conference on Electromagnetic Field Computation (CEFC), the 13th of which was held May 12-14, 2008, in Athens, Greece. Bela was a founder of CEFC, he wrote its constitution and was responsible for the conference receiving IEEE sponsorship. It is perhaps worthwhile to recall Bela's vision for this conference, as embodied in the Constitution:

8. Other Business (cont'd)

Adalbert (Bela) Konrad (cont'd)

"To create a cordial atmosphere, free of politics and commercial or business interests, for the exchange of technical information."

And further:

"To provide opportunities for lesser known but upcoming young researchers who would not normally get a chance to be actively involved, to become an Invited Speaker, a Session Chair, or even a Conference Chair."

This last sentiment was fondly remembered only two weeks ago, at the 2008 CEFC in Athens, by Prof. Ratnajeevan Hoole, who was a young Assistant Professor at Harvey Mudd College in Claremont, CA, recently graduated from Drexel University, when he was chosen as Chair for CEFC 1992. As much as for his technical work, Bela Konrad will be remembered for his legacy as founder of one conference (CEFC), and a long time contributor to another (COMPUMAG), both of which are today regarded as being the key conferences in his chosen field - numerical computation as applied to electromagnetic fields.

Aside from CEFC and COMPUMAG, Bela had a long time association with INTERMAG, the premier conference of the IEEE Magnetics Society, where much of his early classical work was presented, often as invited papers. As well, his interest in high frequency electromagnetic problems made him a regular contributor at the annual meetings of the IEEE Societies for Microwave Theory and Techniques (MTT) and Antennas and Propagation (AP), and at the conferences of the Applied Computational Electromagnetic Society (ACES). From the latter society, he received the ACES Exemplary Service Award in 1994 and the ACES Valued Service Award in 2002. He was made a Fellow of the Wessex institute in 2004 and, as noted, Fellow of the IEEE in 1995.

During recent years, Bela chose to reduce his involvement with conferences, sending instead his students so that they may gain the experience of presenting their work. His absence was felt acutely by his friends, many of whom knew him from the very early days, starting from the mid 1970's. In 2006, unannounced, he chose to attend the CEFC in Miami and the warmth in each greeting he received was palpable. One will never forget the extended lunches that we had, Bela at the head of the table, surrounded by friends, solving the problems of the both technical and the "real" world. That was a moment, on a very personal basis, that I came to treasure. The sentiment is perhaps best captured by words that were written by one of Bela's very good friends, on learning of Bela's passing:

8. Other Business (cont'd)

Adalbert (Bela) Konrad (cont'd)

"Bela was my friend for many, many years, and I am lonelier now. I vividly remember our last meeting at CEFC-Miami. We had a wonderful time together. We reminisced and we laughed as if we were young again."

Bela Konrad was a kind, generous, unselfish man, who gave much of himself, and he will be missed. My singular regret is that I did not know him more – it was only at his memorial service that I learned, for example, that this man was not only an accomplished pianist, but also that he was a composer of considerable talent.

9. Presentation of Awards

Annual Awards for Faculty and Staff

a) **2008 Faculty Teaching Award – Professor Tarek S. Abdelrahman**

The Faculty Teaching Award is presented to an individual who demonstrates outstanding classroom instruction, develops and uses innovative teaching methods and goes above and beyond to ensure the best possible learning experience for students.

Dean Cristina Amon stated that Tarek Abdelrahman embodies these qualities. His students, past and present, rave about his extraordinary ability to stimulate and engage audiences during lectures. In fact, many of his lectures would end with Professor Abdelrahman being treated to spontaneous applause. Students also speak glowingly about Tarek's availability and commitment to meet with students after class to discuss the material or offer advice and mentorship.

His passion for teaching has shone throughout his career at U of T. He received a first year teaching award in 1997 and has gone on to win three ECE Department teaching awards.

Tarek's teaching philosophy centres around preparing students for the lifelong process of learning by focusing on the fundamentals, engaging students through innovative and interesting lectures, and then training students to learn on their own. But above all, he treats every one of his students with respect and in turn is respected by his students.

b) **2008 Early Career Teaching Award – Professor Hani Naguib**

The Early Career Teaching Award recognizes an instructor in the early stages of his or her career who has demonstrated exceptional classroom instruction and teaching methods.

Hani Naguib has only been with the Mechanical and Industrial Engineering Department for three years but in that short time has made quite a favourable impression on students. Students note Professor Naguib's excellent preparation before lectures and his ability to link the subject with his own research to stress the relevance of the material and make

9. Presentation of Awards (cont'd)

Annual Awards for Faculty and Staff (cont'd)

b) **2008 Early Career Teaching Award – Professor Hani Naguib** (cont'd)

very complex concepts look simple. One student proudly commented that Professor "Naguib is incredible! He made an ugly course marvellous! His teaching style is fantastic!" Beyond the classroom, students appreciate Hani's accessibility and dedication to helping students on an individual basis. Above all, his students constantly remark that Hani is truly invested in the outcome of their learning.

c) **2008 Agnes Kaneko Award – Linda Espeut**

Every year at this time, the Faculty has the chance to publicly honour and acknowledge the outstanding contributions of its administrative staff through the presentation of an award in memory of Agnes Kaneko, a long-standing and committed employee in Civil Engineering.

The Dean announced that 2008 winner was **Linda Espeut**, Operations Manager of the Master of Engineering in Telecommunications Program in the Department of Electrical and Computer Engineering.

Linda joined the Department in 1977 and has stood out because of the accuracy and reliability of her work. Her focus, efficiency and organizational skills were described by one nominator as "astounding" resulting in the reputation of super-secretary. Another nominator describes her as a strong individual who handles all circumstances with no discrimination or prejudice. And many lauded her as a mentor.

The Dean expressed her appreciation of Linda's years of exemplary service and extended the Faculty's sincere thanks and congratulations.

d) **2008 McCharles Prize for Early Career Research – Professor Wei Yu**

The McCharles Prize was originally established in 1907 by Aeneas McCharles through a gift to the Faculty of Applied Science and Engineering. This year the Faculty and the University have re-established the McCharles Prize as the McCharles Prize for Early Career Research.

The Dean stated that this award will be given every three years in recognition of exceptional performance and distinction in early career research on the part of a pre-tenure member of the Faculty of Applied Science and Engineering. The recipient will receive a commemorative medal, a $25,000 financial award and will be named McCharles Fellow until the next prize is awarded.

The inaugural recipient of the McCharles Prize for Early Career Research is Professor Wei Yu, of the Department of Electrical and Computer Engineering.

9. Presentation of Awards (cont'd)

Annual Awards for Faculty and Staff (cont'd)

d) **2008 McCharles Prize for Early Career Research** – Professor **Wei Yu** (cont'd)

Professor Yu joined the Faculty in July 2002, shortly after completing his PhD at Stanford University. Since joining the Faculty he has made wide-ranging research contributions in the areas of information theory and digital communications, which have led to important practical applications.

Professor Yu has held a Tier II Canada Research Chair in Digital Communications since 2003. He was awarded an Early Researcher Award from the Province of Ontario in 2006 and won the Faculty's Early Career Teaching Award in 2007. The quality and relevance of Professor Yu's research is clear from his outstanding publication and citation record, and he is clearly on track to becoming an exceptional researcher and educator.

Academic Administrators

The Dean gratefully acknowledged the service of the following academic administrators who completed their terms in the current academic year.

Professor Brenda McCabe, who served as Vice-Dean, Graduate Studies

Professor Paul Young, who served as Chair, Civil Engineering

Professor Chris Yip, who will be continuing to serve as Interim Director, IBBME until August 31.

Retiring Faculty Members

Professor Chris Damaren highlighted the accomplishments of the following two faculty members of UTIAS who were retiring effective June 30.

Professor Tony Haasz

Professor Tony Haasz has just about two years ago completed a 10-year term as Director of the Institute for Aerospace Studies. In this role, he led UTIAS in developing a vision and a long-term strategic plan in aeronautics and space flight – including the establishment of programs in aerospace propulsion, microsatellite technology, multidisciplinary optimization, and the expansion of aircraft flight research at UTIAS. The microsatellite program led to the successful launching of Canada's first microsatellite in 2004.

Professor Haasz obtained his BASc (1967) in Engineering Science and his Master's (1968) and PhD (1973) in Aerospace Science and Engineering at the University of Toronto. Tony's PhD thesis involved measurements of upper atmospheric oxygen and nitrogen concentrations and temperature by analyzing the emission spectra produced by electron-impact excitation of atoms and molecules. Several versions of a rocket-borne

9. Presentation of Awards (cont'd)

Retiring Faculty Members (cont'd)

Professor Tony Haasz (cont'd)

instrument were launched on Black Brant rockets from the Canadian Air Force Base in Churchill, Manitoba. Tony's interest in the ionosphere and plasmas led to his subsequent involvement in fusion energy research. While still working on his doctoral thesis, he joined the UTIAS faculty in 1972, and progressed through the positions of Lecturer/Research Scientist/Assistant/Associate to Full Professor in 1991. From 1991-1996 he was Associate Director/Academic, and from 1996-2006, Director, UTIAS.

While Professor Haasz's administrative activities over the past fifteen years were focussed on Aerospace, his research, dating back to the 1970's has been and continues to be in fusion energy. He and his research group have made significant contributions towards the understanding of plasma materials interactions, in particular, materials erosion and the diffusion, trapping and retention of hydrogen/deuterium/tritium in reactor materials. Especially important is the retention of the radioactive tritium which is one of the fusion fuels – the other being deuterium. This work is highly relevant to the latest international fusion R&D undertaking, ITER, the International Thermonuclear Experimental Reactor – construction of ITER is now underway in France.
Tony has participated in several international collaborations with fusion labs in the US, EU, and Japan; has participated in several *expert groups* and *coordinated research programs* of the International Atomic Energy Agency (IAEA) related to fusion energy R&D. At present, Professor Haasz is a member of the US-Burning Plasma Organization (BPO) – a US national organization of scientists and engineers involved in researching the properties of magnetically confined burning fusion plasmas. As a member of the BPO, Tony has recently – by invitation – led a group of US and Canadian scientists in the preparation of an *ITER Design Review Summary Report on Tritium Retention in ITER First-wall Materials*. Professor Haasz's research has led to over 150 refereed archival publications, over 100 technical reports and 200 scholarly presentations. His graduate and postdoc supervision includes 11 PhD and 46 MASc students and 15 PDF/Research Associates. He is Fellow of the Canadian Aeronautics and Space Institute and Senior Member of the American Institute of Aeronautics and Astronautics. Tony's current research, funded by an NSERC Special Research Opportunities Grant focuses on the extraction of tritium from the reactor vessel of ITER. His post-retirement plans include continuing his research in fusion energy and, jointly with scientists form UofT and other universities and Canadian industries in the fusion field, lobby the Federal and Provincial Governments to establish a Canadian fusion program in support of the ITER project.

Dr. Jorn S. Hansen

Dr. Hansen's formal education (B. A. Sc., M. A. Sc., Ph. D.) was completed in the Division of Solid Mechanics of the Department of Civil Engineering at the University of Waterloo. Subsequently, he worked as a Post Doctoral Fellow in the Department of Solid Mechanics at the Technical University of Denmark and the Department of Civil Engineering at University College, London, England with support from a NATO Post

9. Presentation of Awards (cont'd)

Retiring Faculty Members (cont'd)

Dr. Jorn S. Hansen (cont'd)

Doctoral Fellowship. He joined the staff of the University of Toronto Institute for Aerospace Studies in 1975.

His first sabbatical year (1993 -1994) was spent at the Technical University of Denmark in the Department of Solid Mechanics, the second (2000-2001) was divided between the Instituto Tecnologico e Aeronautica, Sao Jose dos Campos, Sao Paulo, Brazil (7 months) and the Institute of Mechanical Engineering, Aalborg University, Denmark (5 months) while the third (2007-2008) was spent at the Instituto Tecnologico e Aeronautica, Sao Jose dos Campos, Sao Paulo, Brazil (7 months). He is registered as a Professional Engineer in the Province of Ontario.

He has been invited to spend extended research visits at: the Institute of Mechanical Engineering, Aalborg University, Denmark on 5 occasions in 2006, 2001, 1999, 1998 and 1996; National Institute for Space Research - INPE and the Instituto Tecnologico e Aeronautica, Sao Jose dos Campos, Sao Paulo, Brazil, on 7 occasions in 2007, 2006, 2000, 1999, 1997, 1995 and 1992. His research interest centres about structural mechanics. Over the past years research has been completed on structural buckling, theory of elastic stability, the finite element method, high performance composite materials, structural optimization, smart structures and beam/plate theory. Past work also included a space shuttle flight on the NASA Long Duration Exposure Facility for the evaluation of space environmental effects on composite materials. Graduate students have been an integral part of this research; 15 Ph. D. and 52 M.A.Sc. and M. Eng. students have completed their research programmes under his supervision. He has also co-supervised 1 Ph.D. student from Aalborg University, Denmark and supervised 3 Diplomarbeit students from Stuttgart University, Germany; in all cases the visiting students spent extended periods of time in Toronto (6 months to 1 year). The results of this work have been published as 77 journal papers, 114 conference papers, 8 book chapters, 44 technical and contractor reports and have yielded 1 patent.

He has been invited to teach a considerable number of short courses on Advanced Composite Materials and Optimization in Canada, Denmark, Norway, Brazil and the U.S.A. He is a Canadian IUTAM delegate, since 1996, I have been a member of the International Advisory Board, for the Journal of Polymers & Polymer Composites, he was a member of the Ukraine Science and Technology Centre, Natural Sciences and Engineering Research Council (NSERC) from 1995 to 1999, presented an invited plenary lecture at the Iberian Latin-American Congress on Computational Methods for

9. Presentation of Awards (cont'd)

Retiring Faculty Members (cont'd)

Dr. Jorn S. Hansen (cont'd)

Engineering' in Brazil in 1995, Distinguished Invited Lecture at the Aerospace Engineering Symposium, COBEM 2005 in Brazil in 2005, Invited Keynote Lecture CANCAM07, Toronto in 2007, Invited Lecturer at COBEM 2007 in Brazil in 2007. I was a Member of the NSERC Mechanical Engineering Grant Selection Committee from 1990 to 1993, an Associate Editor of the American Institute of Aeronautics and Astronautics Journal from 1987 to 1990, Past Member National Research Council of Canada Associate Committee on Space, former Team Captain, National Research Council of Canada Ad Hoc Committee on Micro-Gravity.

10. Date of the Next Meeting

The next meeting of the Faculty Council is scheduled for **Thursday, October 9, 2008.**

The meeting adjourned at 1:50 p.m.