Frontiers in Applied Computational Electromagnetics

June 19 – 20, 2006, University of Victoria, Victoria, BC, Canada.

Technically Co-sponsored by IEEE AP and MTT Societies

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Welcome from the Co-Chairs

Welcome to the International Workshop on Frontiers in Applied Computational Electromagnetics - FACE 2006. The Computational Electromagnetics Research Laboratory at the University of Victoria will host a stimulating two-day program of scientific, cultural and social events for the participants and their guests. The technical program is co-sponsored by the IEEE Microwave Theory and Techniques (MTT) and the Antenna and Propagation (APS) Societies and features presentations by leading international experts in Computational Electromagnetics, Microwave R&D, Modeling and Optimization.

The non-technical highlights of the event will be a recital for two pianos – guest artists Helmut Brauss and Diana Lawton will perform works by Mozart and Saint-Saëns – followed by a reception and banquet at the University Club.

Victoria, the capital of British Columbia on the southern tip of beautiful Vancouver Island, is one of the most popular tourist attractions in the world, nicknamed "The City of Gardens". We hope you will enjoy not only our Workshop program but also our magnificent North-West Pacific environment and the generous hospitality of its inhabitants.

Poman P. M. So and Jens Bornemann
Co-Chairs
FACE 2006

Scope of the Conference

The Computational Electromagnetics Research Laboratory at the University of Victoria is pleased to host, and invites you to attend a special workshop on research in applied computational electromagnetics, FACE 2006. The main objectives of this workshop are (1) to bring together the researchers and practitioners from around the globe to exchange new ideas and application experiences in applied electromagnetic modeling, (2) to stimulate the development of algorithms and their applications to realistic and challenging problems, and (3) to explore the feasibility of building an open source computational electromagnetics system. The workshop will consist of invited special talks, contributed presentations and poster sessions. English will be the working language and selected papers are planned to be published in a Special issue of the International Journal of Numerical Modeling.

Victoria British Columbia Canada

Victoria, British Columbia is always in season! Victoria has the mildest climate in Canada, and is a place so green all year that flowers fall out of the sky and even the lamp posts bloom. It is no wonder that it is called The Garden City! The wild beauty of the Pacific coast and the adventure of the great outdoors are within the city limits and ocean and mountain vistas will follow you wherever you go. The Garden City is a year-round tourism destination that offers a friendly, safe haven for all visitors. Getting here is very easy, and, once here, you will feel a million miles away. With a clean environment and charming ambience, it is no surprise that Victoria, BC is one of the world's favorite destinations. For additional information about Victoria, please visit www.cerl.ece.uvic.ca/face_2006.htm.

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Dr. Q. Zhang, TriQuint, U.S.A.

Program

Monday June 19

08:30 – 09:00	Registration — Lobby, David Strong Building
09:00 – 10:30	Session 1 — TLM Modelling and Analysis (**W.J.R. Hoefer**)
10:30 – 10:45	Coffee Break
10:45 – 12:15	Session 2 — Hybrid Techniques (**R. Vahldieck**)
12:15 – 13:45	Lunch
13:45 – 15:15	Session 3 — Optimization Techniques for CEM (**J. Bandler**)
15:15 – 15:30	Coffee Break
15:30 – 17:00	Special Presentation, **W.J.R. Hoefer** *In Search for the Intangible – 40 Years of Research in Electromagnetics* David F. Strong Building, Matthews/McQueen Theatre (DSBC 103)
17:00 – 18:00	Break
18:00 – 19:00	Two-Piano Recital, Dr. Helmut Brauss and Ms. Diana Lawton Recital at Philip T. Young Recital Hall
19:00 – 19:30	Reception at University Club
19:30 – 21:30	Banquet

Tuesday June 20

09:00 – 10:30	Session 4 — Modelling of Microwave Components (**J. Bornemann**)
10:30 – 10:45	Coffee Break
10:45 – 12:15	Session 5 — TLM Modelling and Analysis (**P. Russer**)
12:15 – 13:45	Lunch
13:45 – 15:30	Session 6 — Modelling of Antenna Structures (**J. Uher / J. Bornemann**)
15:30 – 15:45	Coffee Break
15:45 – 17:00	Open Discussions — Approaches for Developing an Open-Source CEM Package (**P. So**)

Monday June 19

Session 1 TLM Modelling and Analysis

Chairman: Prof. W.J.R. Hoefer

09:00 – 09:15 *MEFiSTo-Based Microwave Filter Design Exploiting Space Mapping*
Ahmed S. Mohamed, John W. Bandler and Mohamed H. Bakr

09:15 – 09:30 *S-parameter Extraction from the Time Domain Response of Devices with Different Arbitrary Port Impedances*
Huilian Du, Dan Gorcea, Poman P.M. So and Wolfgang J. R. Hoefer

09:30 – 09:45 *Numerical Investigation of Traveling Wave Photodetectors under High Power Illumination*
Damir Pasalic and Rudiger Vahldieck

09:45 – 10:00 *Adjoint-Based TLM Sensitivities Exploiting The Hybrid Symmetrical Condensed Node*
Payam Abolghasem, Mohamed H. Bakr and Natalia K. Nikolova

10:00 – 10:15 *Breast Tumor Detection Processing and Performance based on TLM Analysis*
J. Nielsen and E. Fear

10:15 – 10:30 *Towards a Unifying Framework for Time-domain Numerical Method*s
Zhizhang (David) Chen and Shui-ping Luo

Session 2 Hybrid Techniques

Chairman: Prof. R. Vahldieck

10:45 – 11:00 *Progress of the Finite-Volume Method in Time Domain (FVTD) and in Frequency Domain (FVFD)*
Dirk Baumann, Klaus Krohne, Christophe Fumeaux and Rudiger Vahldieck

11:00 – 11:15 *Perfect Match Total Field / Scattered - Field Formulation in FDTD for a Plane Wave Source Generated by Multipoint 1D Auxiliary Propagator*
Tengmeng Tan and Mike Potter

11:15 – 11:30 *Multi-Region Domain Decomposition FDTD Algorithm Based on Near-Field to Far-Field Transform and Equivalent Incident Fields*
Feng Xu and Ke Wu

11:30 – 11:45 *Accurate Modeling of Microstrip-Line-Coupled NRD-Guide Filter Using a Generalized Surface-Volume Integral-Equation Method*
Duochuan Li, Francois Boone and Ke Wu

11:45 – 12:00 *FVTD - Integral Equation Hybrid for Maxwell's Equations*
Dmitry K. Firsov, Joe LoVetri and Vladimir Okhmatovski

12:00 – 12:15 *The Bio-electromagnetic Equivalent Inverse State Model of Human Brain Activity with the Electrodynamics of Neurons*
Taner Sengor

Session 3 Optimization Techniques for CEM

Chairman: Prof. J. Bandler

13:45 – 14:00 *An Automated Space Mapping Framework*
Qingsha S. Cheng and John W. Bandler

14:00 – 14:15 *Knowledge Based Neuromodeling Using Compound Space Mapping*
Murat Simsek and N. Serap Sengor

14:15 – 14:30 *Cooperative Particle Swarm Optimization of Planar Microwave Filters*
Alireza Mahanfar, Stephane Bila, Michel Aubourg and Serge Verdeyme

14:30 – 14:45 *Time Domain Sensitivity Analysis of Lossy Dielectric Structures*
Ying Li, Yan Li, Natalia K. Nikolova, and Mohamed H. Bakr

14:45 – 15:00 *Neural Network Approaches to Microwave Modelin*g
Qi-Jun Zhang, Lei Zhang, Yi Cao, Humayun Kabir and Kui Bo

15:00 – 15:15 *Efficient One-dimensional FDTD Modelling of Waveguide Structures*
Shuiping Luo and Zhizhang (David) Chen

Tuesday June 20

Session 4 Modelling of Microwave Components

Chairman: Prof. J. Bornemann

09:00 – 09:15 *Compact Dual-Band and Multi-Band Filters for Applications in Wireless Communications*
Marjan Mokhtaari, Jens Bornemann and Smain Amari

09:15 – 09:30 *A Derived Physically Expressive Circuit Model For Multi-Layer RF Embedded Passives*
Ke-Li Wu and Jie Wang

09:30 – 09:45 *A Novel Left-handed Transmission Line Composed of Uniplanar Compact Photonic Bandgaps (UC-PBGs) and Grounded Mushrooms*
Yasushi Horii and Akira Tanaka

09:45 – 10:00 *S-Parameter Analysis on Coupling between DR and GCPW*
HeeSang Noh and Ihn S. Kim

10:00 – 10:15 *System Identification Procedure for Nearly Lossless Passive Microwave Structures*
Yury Kuznetsov, Andrey Baev, Timophey Shevgunov, Petr Lorenz and Peter Russer

10:15 – 10:30 *Modeling CPW on lossy Si-Substrate Using the Cell Method*
Maryam Heshmatzadeh and Greg E. Bridges

Session 5 TLM Modelling and Analysis

Chairman: Prof. P. Russer

10:45 – 11:00 *Full-Wave Based Transmission-Line Model for Lossy-Substrate Multiconductor Interconnects*
Behzad Kordi, Greg E. Bridges, Joe LoVetri and John E. Nordstrom

11:00 – 11:15 *Numerical Modeling of Transient Radiated Interferences by the Hybrid TLM-TDMOM Method*
Rachid Khlifi and Peter Russer

11:15 – 11:30 *Complex Envelop Application in Transmission-Line Matrix - John's Super Node Method and Time Steps Estimate in Electromagnetic Simulation*
C.A. Tenorio de Carvalho Jr., N. Carvalho Pinheiro and L.R.A.X. de Menezes

11:30 – 11:45 *Time-Domain Simulation of Multiconductor Transmission-Lines*
John Paul, Christos Christopoulos and David W.P. Thomas

11:45 – 12:00 *3D-TLM Modeling of Oriented Thin-Wires*
Besma Larbi, Jean-Lou Dubard, Christian Pichot

12:00 – 12:15 *Uncertainty Propagation in Transmission Line Modeling (TLM) Method*
Geovany A. Borges and Leonardo R.A.X. de Menezes

Session 6 Modelling of Antenna Structures

Chairmen: Drs. J. Uher and Prof. J. Bornemann

13:45 – 14:00 *EM Modelling of Complex Antenna Feeds*
J. Uher, Y. Demers, J.P. Langevin, A Petosa

14:00 – 14:15 *2.45 GHz Folded Dipole Antenna Design for RFID Applications: a Numerical Investigation*
Mauro Mongiardo, Michele Patassini, Roberto Sorrentino, Cristiano Tomassoni, Roberto Vincenti Gatti

14:15 – 14:30 *Balanced Antennas for 24 GHz Automotive Ultra-Wide Band Radar Sensors*
Eswarappa Channabasappa

14:30 – 14:45 *Analysis of Monopole Antenna for UWB Short Pulse Radiation*
K. Rambabu, Adrian E.C. Tan and Michael Y.W. Chia

14:45 – 15:00 *FDTD Simulations of Tunable Reflectarrays*
Sean V. Hum and Michal Okoniewski

15:00 – 15:15 *Simultaneous Electrical/Mechanical Optimization Technique for Composite Smart Antennas*
Daniela Staiculescu, Chisang You, Lara Martin and Manos Tentzeris

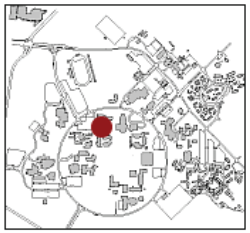
15:15 – 15:30 *A New Driver for Broadbanding Quasi-Yagi Uniplanar Antennas*
F.C. Costa, G. Fontgaland, A.G. D'Assuncao, T.P. Vuong, and L.M. Mendonca

David Strong Building

The David F. Strong Building (formerly the classroom building) contains a variety of classroom spaces, from seminar and break-out rooms to lecture halls and the 200-seat Mathews and McQueen auditorium. Built in 1996, it was renamed the David F. Strong Building in 2000.

David F. Strong (left) was president and vice-chancellor of UVic from 1990 to 2000. Projects developed during his two five-year terms include the acquisition of the Ian H. Stewart Recreation Complex and the construction of residence structures that were used as the athletes village during the 1994 Commonwealth Games.

SEE ALSO
- Campus accessibility
- Building accessibility
- Classrooms
- Classroom accessibility
- Hours of operation
- Getting to UVic



OTHER MAPS
- Campus map
- Parking map

Source: http://www.uvic.ca/buildings/dsb.html

MacLaurin Building

The MacLaurin building is home to UVic's education faculty and school of music. The UVic curriculum lab contains more than 30,000 teaching tools and multi-media resources for creating lesson plans.

The David Lam Auditorium, located on the south side of the MacLaurin building, hosts a number of lecture classes and is also the main venue for several of the university's major public lecture series. The 323-seat lecture theatre was constructed in 1986.

The MacLaurin music wing was completed in 1978 and houses the 200-seat Phillip T. Young recital hall, numerous practice rooms and a professional quality recording studio.

Dr. Donald L. MacLaurin (1881 - 1958) was the founding Principal of the Victoria Provincial Normal School, which he led from 1915 to 1932 when he became assistant superintendent of education for B.C. The Victoria Provincial Normal School was a predecessor of UVic.

- Curriculum & Instruction - Web | Directory
- Curriculum Lab - Web | Directory
- Education, Dean - Web | Directory
- Educational Psychology & Leadership Studies - Web | Directory
- Music - Web | Directory

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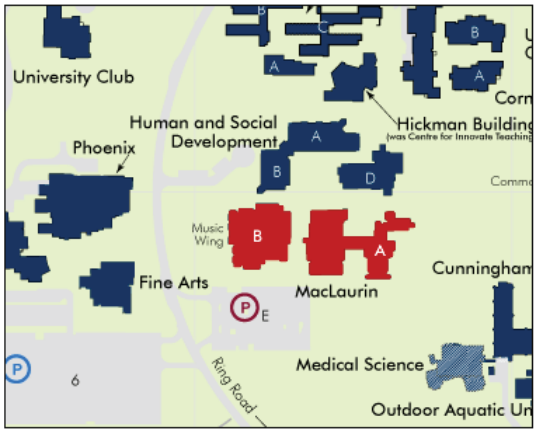


OTHER MAPS

- Campus map
- Parking map

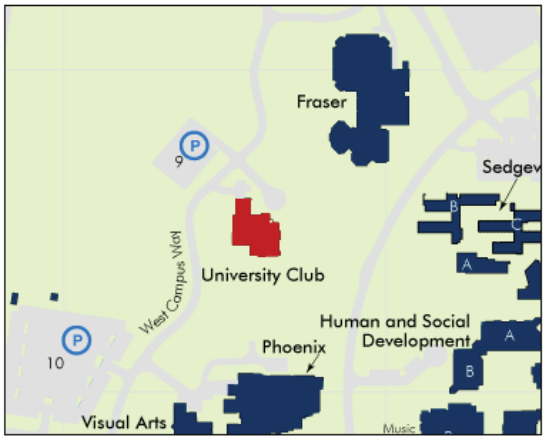
Source: http://www.uvic.ca/buildings/mac.html

University Club

This west coast style facility is nestled in a wooded environment and features a large dining room with a seating capacity for approximately 240, a small dining room with a capacity of 30, two private dining rooms which each have a capacity of 15, a games room and two lounges.

Membership is open to UVic faculty, staff, and alumni, retirees and staff from other universities with which there is a reciprocal agreement, andcorporate members .

- University Club - Web | Directory



SEE ALSO

- Campus accessibility
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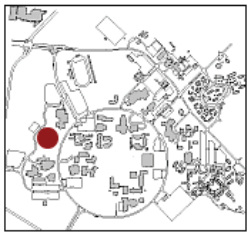
- Getting to UVic

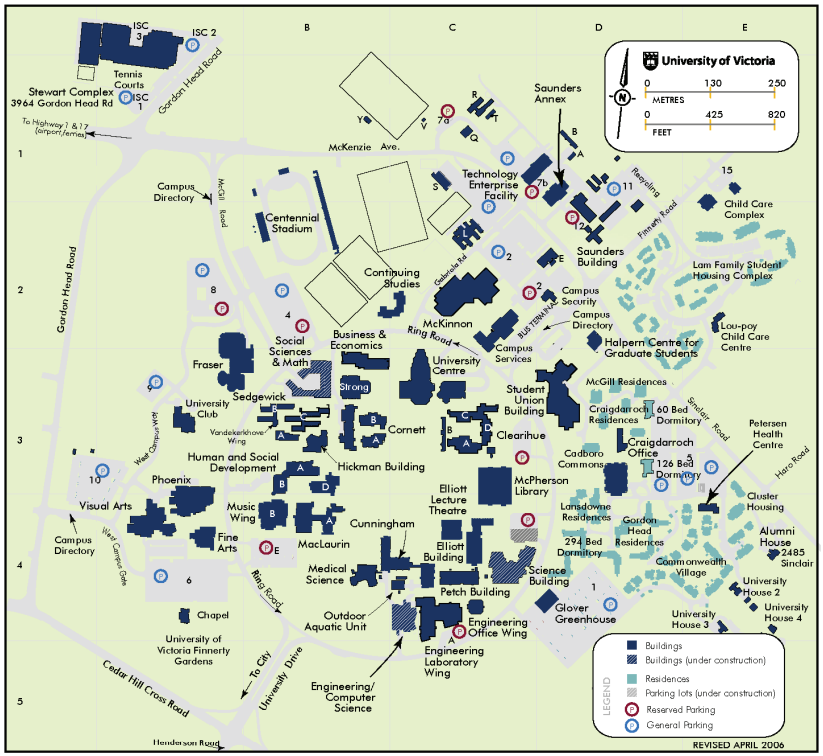


OTHER MAPS

- Campus map
- Parking map

Source: http://www.uvic.ca/buildings/ucl.html

Campus Map



Building	Location
Alumni House	E-4
Business and Economics Building	B-3
Cadboro Commons Building	D-3
Campus Security Building	D-2
Campus Services Building	C-2
Chapel	A-4
Child Care Complex	E-1
Clearihue Building	C-3
Continuing Studies Building	C-2
Cornett Building	B-3
Craigdarroch Office Building	D-3
Cunningham Building	C-4
Elliott Building	C-4
Elliott Lecture Theatre	C-4
Engineering /Computer Science Bldg	C-4
Engineering Laboratory Wing	C-4
Engineering Office Wing	C-4
Fine Arts Building	A-4
Fraser Building	A-3
Glover Green House Facility	D-4
Halpern Centre for Graduate Students	D-2
Hickman Building	B-3
Human & Social Development Bldg	B-3
Hut 'A'	D-1
Hut 'B'	D-1
Hut 'E'	D-2
Hut 'L'	C-2
Hut 'O'	C-1
Hut 'R'	C-1
Hut 'S'	C-1
Hut 'T'	C-1

Building	Location
Hut 'V'	C-1
Hut 'X'	B-1
Lou-Poy Child Care Centre	E-2
MacLaurin Building	B-4
MacLaurin Music Wing	B-4
McKinnon Building	C-2
McPherson Library	C-3
Medical Sciences Building	B-4
Outdoor Aquatic Unit	C-4
Petch Building	C-4
Petersen Health Centre	E-4
Phoenix Building	A-4
Saunders Building & Shops	D-2
Saunders Annex	D-1
Sedgewick Building	B-3
Stadium	B-2
Stewart Complex	A-1
Strong Building	B-3
Student Union Building	D-3
Technology Enterprise Facility I	C-1
University Centre	C-3
University Club	A-3
University House 2	E-4
University House 3	E-4
University House 4	E-4
Visual Arts Building	A-4

Residence	Location
Cluster Housing	
Block 46	E-3
Block 47	E-4
Block 48	E-4
Block 49	E-4
Block 50	E-4
Commonwealth Village - Cluster Housing	
Block 51 - Gibson House	E-4
Block 52 - Rogers House	E-4
Block 53 - McTaggart-Cowan House	E-4
Block 54	E-4
Block 55	E-4
Block 56	E-4
Block 57	E-4
Block 58	E-4
Block 59 - Mickelson House	E-4
Block 60	E-4
Block 61	E-4
Craigdarroch Residences	
Sir Arthur Currie Hall (AC)	D-3
David Thompson Hall (DT)	D-3
Emily Carr Hall (EC)	D-3
Margaret Newton Hall (MN)	D-3
Lam - Family Student Housing	
Block 01 D-2	Block 08 D-2
Block 02 D-2	Block 09 D-2
Block 03 D-2	Block 10 D-2
Block 04 D-2	Block 11 D-2
Block 05 D-2	Block 12 D-2
Block 06 D-2	Block 13 D-2
Block 07 D-2	Block 14 D-2

Residence	Location
Lam - Family Student Housing - continued	
Block 15 D-3	Block 30 E-2
Block 16 D-3	Block 31 E-2
Block 17 E-2	Block 32 E-2
Block 18 E-2	Block 33 E-2
Block 19 E-2	Block 34 E-2
Block 20 E-2	Block 35 E-2
Block 26 D-2	Block 36 E-2
Block 27 E-2	Block 37 E-2
Block 28 E-2	Block 38 E-2
Block 29 E-2	Block 39 E-2
Gordon Head Residences	
Robert Wallace Hall (WA)	D-4
Richard Wilson Hall (WI)	D-4
George & Ray Poole House (PH)	D-4
Roderick Haig-Brown Hall (HB)	D-4
Lansdowne Residences	
Hodges Hall (HO)	D-4
Ravenhill Hall (RA)	D-4
Carroll Hall (CA)	D-4
Trutch Hall (TC)	D-4
Helmcken Hall (HE)	D-4
Sanderson Hall (SA)	D-4
McGill Residences	
Joseph Cunliffe Hall (JC)	D-3
Shirley Baker Hall (SB)	D-3
Hugh Stephen Hall (HS)	D-3
New Dormitory Residences	
60 Bed Residence "Park"	D-3
126 Bed Residence "Tower"	D-3
294 Bed Residence "Ring Road"	D-4

Source: http://www.uvic.ca/maps/2dmap.html

CEM Conferences in 2007

ACES
Applied Computational Electromagnetic Society
ACES Web Site: *http://aces.ee.olemiss.edu*

The 23rd International Review of Progress in Applied Computational Electromagnetics (ACES 2007)
March 19 – 23, 2007, Verona, ITALY

The purpose of the international annual ACES Symposium is to bring developers, analysts and users together to share information and experience about the practical application of EM analysis using computational methods. The symposium offers technical presentations, demonstrations, vendor booths, short courses, and hands-on workshops. All aspects of electromagnetic computational analysis are represented.

The following is a list of suggested topics, although contributions in other areas of computational electromagnetics are encouraged and will be considered.

Suggested Topics

Integral Equation Methods
Hybrid Techniques
Optimization Techniques for CEM
Low Frequency Electromagnetics
Printed and Conformal Antennas
Dielectric Resonator Antennas
Smart Antenna and Arrays
Left Handed Media
MEMS- NEMS and MMIC
Propagation
RF and Microwave Devices
Non Destructive Techniques
FEKO Modeling and Analysis
CST Modeling and Analysis
Differential Equation Methods
Inverse Scattering Techniques
Asymptotic and High Frequency Techniques
Computational Bio-Electromagnetics
Wideband and Multiband Antennas
Phased Array Antennas
EBG and Artificial Materials
Frequency Selective Surfaces
EMC/EMI
Remote Sensing
Pre- and Post-processing
NEC Modeling and Analysis
WIPL-D Modeling and Analysis
MEFiSTo Modeling and Analysis
Object Oriented Computational Electromagnetics

Source : http://aces.ee.olemiss.edu

DIEI Dipartimento di Ingegneria Elettronica e dell'Informazione

HFE HIGH FREQUENCY ELECTRONICS LAB

CEM-TD 2007

September, 2007
, Perugia, ITALY
Cosponsored by IEEE MTT and AP Societies

Workshop Co-Chairs

Prof. L. Roselli, University of Perugia, ITALY.
Prof. P. Mezzanotte, University of Perugia, ITALY.

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Prof. S.El-Ghazaly, University of Tennessee, U.S.A.
Prof. T.Itoh, U.C.L.A., U.S.A.
Prof. C.Balanis, A.S.U., U.S.A.
Prof. J.Volakis, O.S.U. U.S.A.
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