



2015 IEEE International Symposium on Antennas and Propagation and North American Radio Science Meeting

Vancouver, British Columbia, Canada

19 - 25 July, 2015

Final Call for Papers

Submission Deadline: January 16, 2015

The 2015 IEEE AP-S Symposium on Antennas and Propagation and URSI CNC/USNC Joint Meeting - Vancouver 2015 will be held on July 19-25, 2015, at the Westin Bayshore Hotel in Vancouver, British Columbia, Canada. The symposium and meeting are co-sponsored by the IEEE Antennas and Propagation Society (AP-S), the all U.S. and Canadian National Committees (USNC/CNC) of the International Union of Radio Science (URSI). The technical sessions, workshops, and short courses will be coordinated between the two groups to provide a comprehensive and well-balanced program. This meeting is intended to provide an international forum for the exchange of information on state-of-the-art research in antennas, propagation, electromagnetic engineering, and radio science.

The paper submission deadline is January 16, 2015.

With 2.2 million residents, Vancouver is the largest metropolitan area in Western Canada and the third largest in the country. It offers a stunning combination of modern architecture, sophisticated shopping and leading edge entertainment projected against a spectacular natural backdrop of mountains, forests and ocean. Its climate is temperate by Canadian standards and is usually classified as "Marine West Coast". The summer months are typically dry and ideal for all types of outdoor recreational activities.

Vancouver International Airport is consistently rated among the top airports in the world for overall passenger satisfaction. It is serviced by 40 carriers that offer hundreds of direct flights to cities throughout Europe and Asia and thousands of direct flights to North American destinations each week.

More information about the airport can be found at <http://www.yvr.ca>.

Paper Submission:

Authors are invited to submit contributions for review and possible presentation in the symposium on topics of interest to AP-S and URSI including advancements and innovations in the fields of electromagnetics, antennas, and wave propagation. Suggested topics and general information are listed in this call. In addition to regularly scheduled sessions for oral and poster presentations, there will be a student paper competition as well as special sessions, workshops, and short courses that will address timely topics and state-of-the-art advancements in these fields. All paper submissions are due **January 16, 2015**.



Steering Committee Contacts

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AP-S Topics

Antennas

1. Antenna theory
2. Antenna feeds and matching circuits
3. Mutual coupling in antenna arrays
4. Dielectric resonator antennas
5. Microstrip antennas, arrays, and circuits
6. Slotted and guided wave antennas
7. Phased-array antennas
8. Reflector and reflectarray antennas
9. Electrically small antennas
10. Broadband / ultra-wideband antennas
11. Multi-band antennas
12. Adaptive, active, and smart antennas
13. Reconfigurable antennas and arrays
14. Millimetre-wave, sub-mm-wave, and terahertz antennas

Electromagnetics and Materials

15. Electromagnetic theory
16. Electromagnetic material properties and measurements
17. Frequency-selective surfaces
18. Electromagnetic bandgap materials
19. Metamaterials and metasurfaces
20. Nano-electromagnetics
21. Electromagnetic education

Computational and Numerical Techniques

22. High frequency and asymptotic methods
23. Integral equation methods
24. FDTD methods
25. FEM methods
26. Hybrid methods
27. Other numerical methods
28. Techniques for transient simulations
29. Optimization methods in EM designs
30. Parallel and special-processor based numerical methods

Propagation and Scattering

31. Indoor, urban, terrestrial, and ionospheric propagation
32. Propagation and scattering in random or complex media
33. Scattering, diffraction, and RCS
34. Inverse scattering and imaging
35. Remote sensing

Antenna Applications and Emerging Technologies

36. Biomedical applications
37. MIMO implementations and applications
38. Mobile and PCS antennas
39. RFID antennas and systems
40. Ultra wideband systems
41. Vehicular antennas and electromagnetics
42. Software-defined / cognitive radio
43. On-chip antennas
44. Wireless power transmission and harvesting
45. 3D printed antennas and structures

URSI Topics

Commission A - Electromagnetic Metrology

USNC Chair: Christopher Holloway (holloway@boulder.nist.gov)
CNC Chair: Leili Shafai (Leili.Shafai@csa-asc.gc.ca)

- A.1 Microwave to sub-millimeter measurements/standards
- A.2 Quantum metrology and fundamental concepts
- A.3 Time and frequency
- A.4 Time-domain metrology, EM-field metrology
- A.5 EMC and EM metrology
- A.6 Noise
- A.7 Materials
- A.8 Bioeffects and medical applications
- A.9 Antennas
- A.10 Impulse radar
- A.11 Interconnect and packaging
- A.12 Test facilities
- A.13 THz metrology
- A.14 High-Frequency and Millimeter Wireless metrology

Commission B - Fields and Waves

USNC Chair: Sembiam Rengarajan (srengarajan@csun.edu)
CNC Chair: Michel Clenet (Michel.Clenet@drdc-rddc.gc.ca)

- B.1 Antenna arrays
- B.2 Antenna theory, design, and measurements
 - B.2.1 Active antennas
 - B.2.2 Active and passive antenna matching
- B.2.3 Antenna and propagation measurement techniques
- B.2.4 Small antennas
- B.2.5 Other antenna topics
- B.3 Complex, novel, or specialized media
 - B.3.1 Electromagnetic bandgap (EBG) structures
 - B.3.2 Biological media
 - B.3.3 Geophysical media
 - B.3.4 Metamaterials
- B.4 Educational methods and tools
- B.5 Electromagnetic interaction and coupling
- B.6 Frequency selective surfaces and filters
- B.7 Guided waves and wave-guiding structures
- B.8 High-frequency techniques
- B.9 Imaging, inverse scattering and remote sensing
- B.10 Microstrip antennas and printed devices
- B.11 Millimeter wave and Terahertz antennas
- B.12 MIMO antennas and systems
- B.13 Nanoscale electromagnetics
- B.14 Nonlinear electromagnetics
- B.15 Numerical methods
 - B.15.1 Fast methods
 - B.15.2 Finite-Difference methods
 - B.15.3 Frequency-Domain methods
 - B.15.4 Hybrid methods
 - B.15.5 Integral-Equation methods
 - B.15.6 Time-Domain methods
- B.16 Optimization techniques
- B.17 Propagation phenomena and effects
- B.18 Rough surfaces and random media
- B.19 RFID
- B.20 Scattering and diffraction
- B.21 Theoretical electromagnetics
- B.22 Transient fields, effects, and systems
- B.23 Ultra-wideband electromagnetics
- B.24 Wireless communications
- B.25 Wireless sensors and sensing networks
- B.26 Cognitive radio
 - B.26.1 Reconfigurable antennas
 - B.26.2 Simultaneous transmit and receive systems
 - B.26.3 Spectrum enhancement techniques

Commission C - Radio Communication and Signal Processing Systems

USNC Chair: Amir Zaghoul (amirz@vt.edu)
CNC Chair: F. Gagnon (francois.gagnon@etsmtl.ca)

- C.1 Cognitive radio and software defined radio
- C.2 Computational imaging and inverse methods
- C.3 Information theory, coding, modulation and detection
- C.4 MIMO and MISO systems
- C.5 Radar systems, target detection, localization, and tracking
- C.6 Radio communication systems
- C.7 Sensor networks, and sensor array processing and calibration
- C.8 Signal and image processing
- C.9 Spectrum and medium utilization
- C.10 Synthetic aperture and space-time processing
- C.11 Ground Penetrating Radar (GPR)

Commission D - Electronics and Photonics

USNC Chair: Jennifer Bernhard (jbernarh@illinois.edu)
CNC Chair: Christophe Caloz (christophe.caloz@polymtl.ca)

- D.1 Novel transmission line structures and materials
- D.2 Electronic devices, circuits and applications
- D.3 Photonic devices, circuits and applications
- D.4 Physics, materials, CAD, technology and reliability of electronic and photonic devices

Commission E - Electromagnetic Environment and Interference

USNC Chair: Everett G. Farr (efarr@farr-research.com)
CNC Chair: Puyan Mojabi (Puyan.Mojabi@umanitoba.ca)

- E.1 Electromagnetic environment
 - E.1.1 Electromagnetic noise of natural origin
 - E.1.2 Man-made noise
- E.2 Electromagnetic compatibility measurement technologies
- E.3 Electromagnetic compatibility standards
- E.4 Legal aspects of electromagnetic compatibility
- E.5 Electromagnetic radiation hazards
- E.6 Electromagnetic compatibility education
- E.7 Computational electromagnetics in electromagnetic compatibility
 - E.7.1 Computer Modeling
 - E.7.2 Model Validation
 - E.7.3 Statistical Analysis
- E.8 Effects of natural and intentional emissions on system performance
 - E.8.1 Crosstalk
 - E.8.2 Effects of transients
 - E.8.3 System analysis
 - E.8.4 Signal integrity
 - E.8.5 Electromagnetic compatibility in communication systems
 - E.8.6 Statistical analysis
- E.9 High-power electromagnetics
 - E.9.1 Electrostatic discharge
 - E.9.2 Electromagnetic pulse and lightning
 - E.9.3 Transients
 - E.9.4 Power transmission
- E.10 Spectrum management

Commission F - Wave Propagation and Remote Sensing

USNC Chair: V. Chandrasekar (chandra@engr.colostate.edu)
CNC Chair: Cesar Amaya (cesar.amaya@crc.gc.ca)

- F.1 Point-to-point propagation effects
 - F.1.1 Measurements
 - F.1.2 Propagation models
 - F.1.3 Multipath/mitigation
 - F.1.4 Land or water paths
 - F.1.5 Scattering/diffraction
 - F.1.6 Indoor/outdoor links

- F.1.7 Mobile/fixed paths
- F.1.8 Horizontal/slant paths
- F.1.9 Surface/atmosphere interactions
- F.1.10 Atmospheric constituents
- F.1.11 Dispersion/delay
- F.1.12 Natural/man-made structures

F.2 Remote sensing of the Earth by radio waves

- F.2.1 Atmospheric sensing
- F.2.2 Ocean and sea ice
- F.2.3 Field campaigns
- F.2.4 Interferometry and SAR
- F.2.5 Subsurface sensing
- F.2.6 Scattering/diffraction
- F.2.7 Radiation and emission
- F.2.8 Propagation effects
- F.2.9 Urban environments
- F.2.10 Soil moisture & terrain

F.3 Propagation and remote sensing in complex and random media

Commission G - Ionospheric Radio and Propagation

USNC Chair: Frank Lind (flind@haystack.mit.edu)
CNC Chair: P. T. Jayachandran (jaya@unb.ca)

- G1. Global morphology and modeling of the ionosphere
- G2. Ionospheric space-time variations
- G3. Development of tools and networks needed to measure ionospheric properties and trends
- G4. Theory and practice of radio propagation via the ionosphere
- G5. Application of ionospheric information to radio systems

Commission H - Waves in Plasma

USNC Chair: Victor Pasko (vpasko@psu.edu)
CNC Chair: P. T. Jayachandran (jaya@unb.ca)

- H1. Plasma instabilities
- H2. Generation and propagation of waves in plasmas
- H3. Interaction between these waves, and wave-particle interactions
- H4. Plasma turbulence processes and chaos
- H5. Spacecraft-plasma interactions
- H6. Application of the results, particularly in the areas of solar/planetary plasma interactions, and the increased exploitation of space as a research laboratory

Commission J - Radio Astronomy

USNC Chair: Richard Bradley (rbradley@nrao.edu)
CNC Chair: Stephane Claude (stephane.claude@nrc-cnrc.gc.ca)

- J1. Observation and interpretation of all radio emissions and reflections from celestial objects.
 - J1.1. Promotion of technical means for making radio-astronomical observations and data analysis
 - J1.2. Support of activities to protect radio-astronomical observations from harmful interference.

Commission K - Electromagnetics in Biology and Medicine

USNC Chair: Erdem Topsakal (topsakal@ece.msstate.edu)
CNC Chair: Michal Okoniewski (okoniewski@ucalgary.ca)

- K.1 Biological effects
- K.2 Dosimetry and exposure assessment
- K.3 Electromagnetic imaging and sensing applications
- K.4 Therapeutic, rehabilitative, and other biomedical applications
- K.5 Human body interactions with antennas and other electromagnetic devices

INSTRUCTIONS FOR AP-S AND URSI AUTHORS

General Submission Information

All paper and abstract submissions must be received in PDF format via the symposium website on or before Friday, January 16, 2015. This is a firm deadline. Papers will not be accepted after this date. Only electronic submissions in PDF format will be accepted. Please consult the symposium web site for the latest instructions, templates, and format examples. Only the author who submits the paper will receive an acknowledgement of the submission. Please do not include page numbers on submitted documents. All papers must be written in clear, idiomatic English. Please note that AP-S reserves the right to exclude a paper from distribution after the conference (e.g., removal from the proceedings submitted to IEEE Xplore) if the paper is not presented at the conference. Address all AP-S and URSI correspondence, including inquiries concerning papers, abstracts, the technical program, and copyright forms, to Costas Sarris (technical-program-chairs@2015apsursi.org).

Instructions for AP-S Authors

All AP-S summary papers for the 2015 symposium must be submitted in the IEEE standard two-column format. Templates for Microsoft Word (.doc) and LaTeX2e are available at the symposium Web site. Papers must be two pages in length, including text, references, and figures. Note that the information density of the new two-column format is roughly twice that of the old format. The introduction of the paper should clearly indicate the unique aspects of the submission and how it relates to previous work. A signed IEEE copyright form must accompany all AP-S submissions. Papers submitted without copyright forms will be rejected. Instructions for electronically signing and submitting copyright forms are available at the symposium Web site.

Instructions for URSI Authors

URSI abstract submissions must consist of at least 250 words and must be limited to one page, including figures. The text must be single-spaced with a minimum font size of 11 points. Any font may be used, but a font from the Times or Arial/Helvetica family is preferred. All fonts must be embedded in the submitted PDF document. The title should be centered 2.5 cm (1 inch) from the top of the page. The author's (or authors') name and complete organizational affiliation should start two lines below the title. If there are multiple authors, the presenter's name should be indicated with an asterisk. The text should start three lines below the last line of the organizational affiliation(s). The top and bottom margins should be 2.5 cm (1 inch), and the left-hand and right-hand margins should be at least 2.5 cm (1 inch). Paragraphs should be separated with one blank line. Do not include a list of references. However, a few open-literature references may be included parenthetically, for example: (R. L. Lewis and J. R. Johler, Radio Sci., 2, 75-81, 1976). Acknowledgment of financial support is not appropriate. The Commission and session topic for the abstract must be identified at the time of submission.

AP-S Student Paper Competition

Eligible entries in the Student Paper Competition must have only one student author, and that student must be the first author. Each additional co-author must submit a signed letter indicating that his/her contribution is primarily advisory. Letters must be in PDF format and must be uploaded to the symposium's student paper Web site in the indicated area at the time the paper is submitted. All Student Paper Competition entries will be evaluated using a double-blind review process in addition to the normal review process used for regular submissions. Detailed instructions will be available on the symposium Web site. For additional information, contact Mojgan Daneshmand (student-paper-competition@2015apsursi.org).

AP-S Student Design Contest

Students are invited to participate in the 6th IEEE Antennas and Propagation Society (AP-S) Student Design Contest, by designing and building an antenna that is optimized for body area networks. The top 3 teams will receive up to US\$2,500 in travel funds to attend the conference in Vancouver, to demonstrate their working systems. From these 3 teams, 1st, 2nd and 3rd place winners will be announced at the 2015 IEEE AP-S Awards Banquet at the conference and will receive cash awards of US\$1500, \$750 and \$250, respectively. Moreover, final reports will have the opportunity to be considered for publication in the IEEE AP Magazine. The deadline for a two-page proposal of the preliminary design is November 3, 2014. Further details are available on the symposium website. For additional information, contact Buon Kiong Lau, via email at student-design-competition@2015apsursi.org.

Special Sessions

Requests to organize special sessions should be submitted to Derek McNamara special-sessions@2015apsursi.org no later than October 9, 2014. Each proposal should include the title of the special session, a brief description of the topic, and justification for its designation as a special session. All proposals should be submitted in PDF format. Special sessions will be selected and finalized by the end of November 2014. At that time, additional instructions will be provided to the organizers of the special sessions chosen for inclusion in the symposium and/or the meeting. The associated papers or abstracts will be due January 16, 2015. A list of special sessions will be posted at the symposium Web site in December 2014.

Exhibits

Industrial, academic, and book exhibits will be open July 21-23, 2015. Exhibitor registration and additional information can be found on the symposium Web site.

Short Courses/Workshops

Individuals who wish to organize a short course or workshop should contact Ahmed Kishk (shortcourse-workshops@2015apsursi.org) by November 14, 2014.

For additional information, please visit the symposium Web site www.apsursi2015.org.