



National Radio Science Meeting

The National Academies of
SCIENCES • ENGINEERING • MEDICINE



- ◆ January 4-7, 2018 ◆ University of Colorado at Boulder
- ◆ Meeting website: www.nrsmboulder.org
- ◆ USNC-URSI website: www.usnc-ursi.org

This open scientific meeting is sponsored by the U.S. National Committee (USNC) of the International Union of Radio Science (URSI). The USNC-URSI is appointed by the National Academies of Sciences, Engineering and Medicine, and represents U.S. radio scientists in URSI. Through technical co-sponsorship of the meeting by the IEEE Antennas and Propagation Society, authors will have their choice of submitting one-page abstracts that are not archived on IEEE Xplore, or two-page summaries that are archived on IEEE Xplore. At least one author is required to register for each presented abstract or summary. Papers must be presented for their corresponding summaries to be archived on IEEE Xplore. Abstracts or summaries on any topic in the interest area of a Commission are welcome. Contact the USNC-URSI Commission Chairs listed below or visit the meeting website for further information.

Please note that the meeting this year takes place on Thursday-Sunday. (In the recent past it has been Wednesday-Saturday.) Sunday will be used for technical presentations only if needed to accommodate the number of accepted papers.

Meeting Plenary Highlights

(1) *The Wonderful World of Waves in the Near Earth Environment*

(2) *Radio Navigation Systems - New Challenges and Opportunities*

Contacts: Anatoly Streltsov (Commission H Chair), streltsa@erau.edu

Sigrid Close (Commission G Chair), sigridc@stanford.edu

USNC-URSI Chair (2015-2017): David R. Jackson, (713)743-4426, djackson@uh.edu
USNC-URSI Chair (2018-2020): Sembiam Rengarajan, (818) 677-3571, srengarajan@csun.edu

COMMISSION A, Electromagnetic Metrology

Steven J. Weiss, (301) 394-1987,

steven.j.weiss14.civ@mail.mil

Incoming chair (2018-2020): Jeanne Quimby

TOPICS

Antennas

Bioeffects and medical applications

EM-field metrology

EMC and EM pollution

Impulse radar

Interconnect and packaging

Materials

Microwave to submillimeter measurements/standards

Millimeter-wave and sub-mm wave communications

Noise

Planar structures and microstrip circuits

Quantum metrology and fundamental concepts

Time and frequency

Time domain metrology

Nano-electromagnetics

Nonlinear electromagnetics

Numerical methods (differential- and integral-equation based, hybrid and other techniques)

Propagation phenomena and effects

Rough surfaces and random media

Scattering

Theoretical electromagnetics

Transient fields, effects, and systems

Ultra-wideband electromagnetics

Wireless communications

COMMISSION C, Radio-communication Systems and Signal Processing

Gregory H. Huff, (979) 862-4161, ghuff@tamu.edu

Incoming chair (2018-2020): Eric L. Mokole

TOPICS

Cognitive radio

Computational imaging and inverse methods

Distributed sensor networks

Physics-based signal processing

Radar systems

Radar target detection, localization, and tracking

Sensor array processing and calibration

Signal processing for radar remote sensing

Statistical signal processing of waves in random media

Synthetic aperture and space-time processing

COMMISSION B, Fields and Waves

John L. Volakis, (614) 292-5846, volakis@ece.osu.edu

Incoming chair (2018-2020): Jamesina Simpson

TOPICS

Antenna arrays

Antenna theory, design and measurements

Cognitive radio

Complex media (metamaterials, bandgap structures, biological and geophysical media, and others)

Educational methods and tools

Electromagnetic interaction and coupling

Guided waves and waveguiding structures

High-frequency techniques

Inverse scattering and remote sensing

Microstrip and printed devices and antennas

Nano-electromagnetics

**Abstract / Summary Submissions
and
Student Paper Competition Submissions
are due by
September 18, 2017
This is a FIRM DEADLINE!
Please visit www.nrsmboulder.org**

COMMISSION D, Electronics and Photonics

Zoya Popovic, (303) 492-0374, Zoya.Popovic@colorado.edu
Incoming chair (2018-2020): Negar Ehsan

TOPICS

Electronic devices, circuits, and applications
Photonic devices, circuits, and applications
Physics, materials, CAD, technology and reliability of electronic and photonic devices, in radio science and telecommunications
Wide bandgap materials

COMMISSION E, Electromagnetic Environment and Interference

Charles Baylis, (254) 710-4306, Charles_Baylis@baylor.edu
Incoming chair (2018-2020): Larry Cohen

TOPICS

Communication in the presence of noise
Effects of natural and intentional emissions on system performance
Electromagnetic compatibility in: computational electromagnetics, education, measurement technologies, standards, and radiation hazards
High-power electromagnetic effects of transients on electronic systems
Spectrum management and utilization

COMMISSION F, Wave Propagation and Remote Sensing

Michael H. Newkirk, (240) 228-6976,
Michael.Newkirk@jhuapl.edu

Incoming chair (2018-2020): Kamal Sarabandi

TOPICS

Point-to-point propagation effects:
Measurements *Mobile/fixed paths*
Propagation models *Horizontal/slant paths*
Multipath/mitigation *Surface/atmosphere interactions*
Land or water paths *Numerical weather prediction*
Scattering/diffraction *Dispersion/delay*
Indoor/outdoor links *Natural/man-made structures*
Microwave remote sensing of the earth:
Atmospheric sensing *Ocean and ice sensing*
Field campaigns *Interferometry and SAR*
Subsurface sensing *Scattering/diffraction*
Radiation and emission *Propagation effects*
Urban environments *Soil moisture & terrain*
Subsurface sensing
Propagation and remote sensing in complex and random media

COMMISSION G, Ionospheric Radio and Propagation

Sigrid Close, (650) 725-2863, sigridc@stanford.edu
Incoming chair (2018-2020): Attila Komjathy

TOPICS

Ionospheric imaging
Ionospheric morphology
Ionospheric modeling and data assimilation

Meteoroids and orbital debris
Radar and radio techniques for ionospheric diagnostics
Space weather – radio effects
Transionospheric radio propagation and systems effects

COMMISSION H, Waves in Plasmas

Anatoly V. Streltsov, (386) 226-7137, streltsa@erau.edu
Incoming chair (2018-2020): Robert Moore

TOPICS

Chaos and turbulence in plasmas
Plasma instabilities
Spacecraft-plasma interactions
Solar/planetary-plasma interactions
Space as a research laboratory
Wave-wave and wave-particle interactions
Waves in space and laboratory plasmas

COMMISSION J, Radio Astronomy

David DeBoer, (510) 520-9077, ddeboer@berkeley.edu
Incoming chair (2018-2020): Jeff Mangum

TOPICS

ALMA 2030
The VLBA at 25: Recent Accomplishments and Future Directions
New Telescopes, Techniques and Technology
Observatory Reports
Spectral Line Cosmology and Low-Frequency Arrays

COMMISSION K, Electromagnetics in Biology and Medicine

Mahta Moghaddam, (213) 740-4712, mahta@usc.edu
Incoming chair (2018-2020): Majid Manteghi

TOPICS

Biological effects
Dosimetry and exposure assessment
Electromagnetic imaging and sensing applications
Human body interactions with antennas and other electromagnetic devices
Therapeutic, rehabilitative and other biomedical applications
Body-Area Networks
Medical Devices

ERNEST K. SMITH USNC-URSI STUDENT PAPER COMPETITION

Prizes will be awarded to three student papers. Awards will be made for First Prize in the amount of \$1000, Second Prize at \$750, and Third Prize at \$500. The deadline for submission of **full papers** on the meeting website is **September 18, 2017**. Please see www.nrsmboulder.org for additional information, or contact the Student Paper Chair, Prof. Erdem Topsakal, Dept. of ECE, Virginia Commonwealth University, etopsakal@vcu.edu. Student papers and awards will be presented at the Plenary Session on Friday morning, January 5, 2018. Student Paper Competition participants will have the option of submitting their full papers for publication in a special section of the journal *Radio Science*.

ABSTRACT AND SUMMARY SUBMISSION

The organizers of this meeting require the use of electronic submission. Details and instructions may be found at the conference website, www.nrsmboulder.org. Authors may choose to submit to special sessions in addition to the general topics listed above. A list of special sessions will be available on the conference website. All abstracts or summaries must be submitted online by **Monday, September 18, 2017**. Abstracts must have a minimum of 250 words. You will not be able to submit an abstract that does not meet the minimum length requirements. After abstract or summary submission is complete, please note that registration is required to attend any session of the meeting or to present a paper. More information about USNC-URSI is available at www.usnc-ursi.org.

Questions about the conference: For questions about the conference, please contact David R. Jackson or Sembiam Rengarajan. For questions concerning conference logistics, please contact Christina Patarino; Phone: (303) 492-5151, E-mail: christina.patarino@colorado.edu.