



# National Radio Science Meeting

- ◆ January 6-9, 2021 ◆ University of Colorado at Boulder
- ◆ Meeting website: [www.nrsmboulder.org](http://www.nrsmboulder.org)
- ◆ USNC-URSI website: [www.usnc-ursi.org](http://www.usnc-ursi.org)



The National Academies of  
SCIENCES • ENGINEERING • MEDICINE

This open scientific meeting is sponsored by the U.S. National Committee (USNC) for 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 submitted to IEEE Xplore, or two-page summaries that may be submitted to 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 submitted to IEEE Xplore. Abstracts or summaries on any topic in the interest area of a Commission are welcome. Contact the appropriate USNC-URSI Commission Chair listed below or visit the meeting website for further information. **An announcement about any COVID-19 related contingency plan will be made by September 1, 2020.**

## Meeting Plenary Highlights TBD

**USNC-URSI Chair:** Sembiam R. Rengarajan, (818) 677-3571, [srengarajan@csun.edu](mailto:srengarajan@csun.edu)  
**USNC-URSI Secretary:** Michael H. Newkirk, (240) 228-6976, [Michael.Newkirk@jhuapl.edu](mailto:Michael.Newkirk@jhuapl.edu)

### COMMISSION A, Electromagnetic Metrology

Jeanne Quimby, 303-497-4217, [jeanne.quimby@nist.gov](mailto:jeanne.quimby@nist.gov)

#### 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*

### COMMISSION B, Fields and Waves

Jamesina Simpson, 801-585-6929,  
[jamesina.simpson@utah.edu](mailto:jamesina.simpson@utah.edu)

#### 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*  
*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

Eric L. Mokole, 703-983-3349, [eric.mokole@outlook.com](mailto:eric.mokole@outlook.com)

#### TOPICS

*Addressing digital divide through radiocommunication systems*  
*Artificial intelligence/Machine learning for RF systems*  
*Cognitive radio*  
*Computational imaging and inverse methods*  
*Computational resource management*  
*Distributed sensor networks*  
*Dynamic spectrum networks*  
*Physics-based signal processing*  
*Quantum RF theory/Technologies/Applications*  
*Radar systems*  
*Radar target detection, localization, and tracking*  
*RF spectrum convergence/Harmony/Maneuver*  
*Sensor array processing and calibration*  
*Signal processing for radar remote sensing*  
*Software-defined and cognitive radio/Radar/Sensing*  
*Statistical signal processing of waves in random media*  
*Synthetic aperture and space-time processing*

### COMMISSION D, Electronics and Photonics

Negar Ehsan, 301-286-8406, [negar.ehsan@nasa.gov](mailto:negar.ehsan@nasa.gov)

#### 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*  
*THz electronics*  
*Reconfigurable RF*

**Abstract / Summary Submissions  
and  
Student Paper Competition Submissions  
are due by  
September 20, 2020  
This is a FIRM DEADLINE!  
Please visit [www.nrsmboulder.org](http://www.nrsmboulder.org)**

## COMMISSION E, Electromagnetic Environment and Interference

Larry Cohen, 202-404-7726, lawrence.cohen@nrl.navy.mil

### 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*  
*Signal and power integrity*  
*Spectrum management and utilization*

## COMMISSION F, Wave Propagation and Remote Sensing

Kamal Sarabandi, 734-936-1575, saraband@umich.edu

### 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*  
*Propagation and remote sensing in complex and random media*

## COMMISSION G, Ionospheric Radio and Propagation

Attila Komjathy, 818-393-6828,

attila.komjathy@jpl.nasa.gov

### 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

Robert C. Moore, 352-392-0634, moore@ece.ufl.edu

### TOPICS

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

## COMMISSION J, Radio Astronomy

Jeff Mangum, 434-296-0347, jmangum@nrao.edu

### TOPICS

*Next generation very large array (ngVLA)*  
*The quest for characterizing the low-frequency sky and detecting the epoch of reionization*  
*Digital signal processing technology for very long baseline interferometry*  
*New telescopes, techniques, and technology*  
*Observatory reports*  
*Timely technical tutorials*

## COMMISSION K, Electromagnetics in Biology and Medicine

Majid Manteghi, 540-231-6834, manteghi@vt.edu

### 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*

## 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 20, 2020**. Please see [www.nrsmboulder.org](http://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 Thursday morning, January 7, 2021. Student Paper Competition participants will have the option of submitting their full papers for possible publication in a special section of the journal *Radio Science*.

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## 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](http://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 **Sunday, September 20, 2020**. If you have any questions on abstract/summary submission or the technical program, please direct them to the USNC-URSI Secretary, at Michael.Newkirk@jhuapl.edu. 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](http://www.usnc-ursi.org).

**Questions about the conference:** For questions concerning conference logistics, please contact: Christina Patarino, Phone: (303) 492-5151, Fax: (303) 492-5959, E-mail: [christina.patarino@colorado.edu](mailto:christina.patarino@colorado.edu)