



2024 CALL FOR PAPERS

IEEE AP-S INTERNATIONAL SYMPOSIUM/ ITNC-USNC-URSI RADIO SCIENCE MEETING
FLORENCE, ITALY 14-19 JULY 2024

Welcome

Dear colleagues and friends,

It is our great pleasure to welcome you to the beautiful city of Florence (Italy) for the 2024 IEEE International Symposium on Antennas and Propagation and ITNC-USNC-URSI Radio Science Meeting at the "Fortezza da Basso" Convention Center from July 14 to 19, 2024. The event is co-sponsored by the IEEE Antennas and Propagation Society (IEEE AP-S), the Italian National Committee (ITNC), and the US National Committee (USNC) of the International Union of Radio Science (URSI). The Symposium will feature a diverse range of keynote speeches, technical sessions, and interactive workshops covering various topics related to antennas and propagation. From antenna design and analysis to electromagnetic theory, wireless communication systems, and beyond, we will explore the pioneering research and applications that are shaping the future of this dynamic field. Florence is the cradle of the Renaissance, developed in Italy from the mid-fourteenth century to the end of the sixteenth century, marking the transition from the Middle Ages to modernity. In this sense, we hope our conference will contribute to a 'Technological Renaissance' for advancing humanity.

We look forward to welcoming you personally to Florence in 2024 and making your congress experience pleasant and unforgettable.

Sincerely,

Agostino Monorchio
Conference Chair

Roberto D. Graglia, Giuliano Manara
Conference Co-chairs

Steering and Organizing Committees

General Chair

Agostino Monorchio

Co-Chairs

Roberto Graglia
Giuliano Manara

Finance Chair

Adrien Merlini

Technical Program Committee

Francesco Andriulli
Asimina Kiourti
Andrew F. Peterson

Publication

Guido Lombardi

Special Sessions

Koichi Ito
Raffaele Solimene

Short Courses & Workshops

Jiro Hirokawa
Konstantina Nikita
Zhongxiang Shen
Douglas H. Werner

Industry & Government Engagement

Lars J. Foged
Sara Mugnaini
Rod Waterhouse

Student Paper Competition

Tommaso Isernia
Amanda Malone
Felix Vega

Student Design Contest

Roberto Flamini
Glaucio Fontgalland

Young Professionals

Danilo Brizi
Peiyuan Qin

URSI-AP Liaisons

Carlo Carobbi
Piergiorgio Uslenghi

Women in Engineering & Radio Science

Martina T. Bevacqua
Claire Migliaccio
Mahta Moghaddam
Sana Salous
Francesca Vipiana

Publicity & Social Media

Vladimir Okhmatosvky
Marco Salucci
Erdem Topsakal

Local Arrangements

Angelo Freni
Stefano Selleri

Social Programs & Hospitality

Shelly Uslenghi
Joanne Wilton
Giovanna Zanella

International Advisory Committee

Christophe Fumeaux
Debatosh Guha
Ludger Klinkenbusch
Kwai-Man Luk
Jiaqi Liu
Kathleen Melde
Christian Pichot
Dirk de Villiers
Fan Yang
Shengjun Zhang

IMPORTANT DATES

15 OCTOBER 2023

PROPOSAL OF SPECIAL SESSIONS

3 DECEMBER 2023

PROPOSAL FOR SHORT COURSES/
WORKSHOP/TUTORIALS

21 JANUARY 2024

PAPER SUBMISSION DEADLINE



2024.apsursi.org



2024 CALL FOR PAPERS

IEEE AP-S INTERNATIONAL SYMPOSIUM/ ITNC-USNC-URSI RADIO SCIENCE MEETING

Paper Submission

Authors are invited to submit abstracts and papers for review and possible presentation on topics of interest to AP-S and USNC-URSI: AP-S submissions must be in standard IEEE two-column format and must be two pages in length.

USNC-URSI submissions may be in either a one-page, one-column format with a minimum length of 250 words, or in the IEEE two-page, two-column format with a length of two pages.

Suggested topics and general information are listed below and on the conference website. Please note the following:

- In all cases, only accepted and presented submissions that are in the IEEE two-page two-column format and substantially fill the two pages will be submitted for possible inclusion in IEEE Xplore if the author chooses submission to Xplore.
- All accepted and presented submissions will appear in the proceedings distributed at the conference.
- The presenting author will be required to register for the conference by the due date (to be announced) in order for their paper to be included in the conference.
- Detailed instructions, including formats and templates, are available on the conference website.
- Every effort will be made to complete the review process before the registration is open, so attendees have sufficient time to obtain visas as needed.

AP-S Topics

Antenna Fundamentals

1. Antenna theory
2. Antenna measurements
3. Antenna feeds and matching circuits
4. Wire antennas
5. Slot antennas
6. Dielectric resonator antennas
7. Microstrip antennas
8. Traveling and guided-wave antennas
9. Electrically small antennas

Antenna Enhancements

10. Array antennas
11. Mutual coupling in antennas
12. Reflector and reflectarray antennas
13. Multi-band antennas
14. Broadband/ultra-wideband antennas & systems
15. Millimeter-wave antennas
16. Metasurface and metamaterial antennas
17. MIMO implementations and applications
18. Reconfigurable and adaptive antennas and arrays

Electromagnetics: Theory, Materials, and Education

19. Electromagnetic theory
20. Electromagnetic material properties and measurements
21. Frequency-selective surfaces
22. Electromagnetic bandgap materials
23. Metamaterials and metasurfaces
24. Nano-electromagnetics
25. High power electromagnetics
26. Random and nonlinear electromagnetics
27. Electromagnetics education
28. Historical Aspects of Antennas & EM

Computational and Analytical Techniques

29. Computational electromagnetics
30. High-frequency and asymptotic methods
31. Integral-equation methods
32. FDTD methods
33. FEM methods
34. Hybrid methods
35. Techniques for transient simulations
36. Techniques for layered and inhomogeneous media
37. Optimization methods in EM designs
38. Parallel and special-processor-based numerical methods

Propagation and Scattering

39. Indoor, urban, terrestrial, and ionospheric propagation
40. Propagation models
41. Channel modeling
42. Propagation and scattering in random or complex media
43. Scattering, diffraction, and RCS
44. Inverse scattering and imaging
45. Remote sensing

Antenna Applications and Emerging Technologies

46. Biomedical applications
47. Mobile antennas
48. Automotive antennas & electromagnetics
49. Satellite antennas
50. Antennas on platforms and in specialized environments
51. On-chip antennas
52. 3D printed antennas and structures
53. RFID antennas and systems
54. Wireless power transmission and harvesting
55. THz and optical antennas
56. Software-defined/cognitive radio
57. AI in electromagnetic field applications

URSI Topics

Commission A: Electromagnetic Metrology

- 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 & Waves

Antennas

- B.1. Antenna theory, design, and measurements
- B.2. Antenna arrays and systems
- B.3. Microstrip and printed antennas, circuits, and devices
- B.4. Antenna feeds and reflector and reflectarray antennas

Propagation, Scattering, Sensing

- B.5. Electromagnetic propagation, scattering, and interaction

- B.6. Guided-wave structures and systems
- B.7. Imaging, inverse scattering, and remote sensing
- B.8. Wireless sensors, networks, and communication

Numerical Methods

- B.9. Integral-equation methods
- B.10. Finite-element, finite-difference, and hybrid methods
- B.11. Computational electromagnetics, analysis, and optimization

Theory, Materials, Education

- B.12. Electromagnetic theory
- B.13. Metamaterials and complex media
- B.14. Electromagnetics education

Devices, Systems, Applications

- B.15. RF and microwave devices, structures, and systems
- B.16. THz and optical antennas, devices, and systems
- B.17. Biomedical applications of fields and waves

Commission C: Radio Communication and Signal Processing Systems

- C.1. Cognitive radio, software-defined wireless systems, and waveform diversity
- 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.6.1. Internet of Things
 - C.6.2. 5G
 - C.6.3. Electromagnetic spectral harmony
- C.7. Sensor networks, and sensor array processing and calibration
- C.8. Signal and image processing
- C.9. Spectrum and medium utilization
 - C.9.1. Electromagnetic modeling of systems and environments
- C.10. Synthetic aperture and space-time processing
- C.11. Ground-penetrating radar (GPR)
- C.12. Distributed, multi-modality, electromagnetic, autonomous systems

Commission D: Electronics and Photonics

- D.1. Electronic devices, circuits, and applications
- D.2. Photonic devices, circuits, and applications
- D.3. Physics, materials, CAD, technology and reliability of electronic and photonic devices, in radio science and telecommunications
- D.4. Wireless Power
- D.5. Wearable Antennas
- D.6. THz electronics and antennas

- D.7. Integrated antenna systems for MMW and THz
- D.8. Active Antennas
- D.9. Reconfigurable RF
- D.10. IoT and RFID antennas, circuits, and systems
- D.11. Metamaterials and plasmonics

Commission E: Electromagnetic Environment and Interference

- E.1. Electromagnetic environment
 - E.1.1. Electromagnetic noise of natural origin
 - E.1.2. Manmade 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 compatibility issues, usage and management

Commission F: Wave Propagation and Remote Sensing

- 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. Numerical weather prediction
 - F.1.11. Dispersion/delay
 - F.1.12. Natural/manmade structures
- F.2. Microwave remote sensing of the Earth
 - F.2.1. Atmospheric sensing
 - F.2.2. Ocean and ice sensing
 - 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 K: Electromagnetics in Biology and Medicine

- K.1. Body-area networks
- K.2. Dosimetry and exposure assessment
- K.3. Electromagnetic and mixed-mode imaging and diagnostics
- K.4. Therapeutic and rehabilitative applications
- K.5. Implantable and ingestible devices
- K.6. Human-body interactions with antennas and other electromagnetic devices

AP-S Student Paper Competition

Eligible entries in the Student Paper Competition (SPC) must only have one student author and the student must be the first author. The student's primary academic advisor must respond to an email that will be sent to after the paper is submitted indicating that coauthor's contributions are primarily advisory. Detailed instructions are available on the conference website. For additional information, contact SPC Committee Chairs Amanda Malone, Felix Vega, and Tommaso Isernia at spc@2024.apsursi.org.

AP-S Student Design Contest

All students are encouraged to form teams and participate in the Student Design Contest. Each team should consist of two to five students, with at least 50% being undergraduate students. Detailed instructions may be found on the conference website. For additional information, contact Roberto Flamini (roberto.flamini1@huawei.com) or Glauco Fontgalland (designcontest2023@ieeeaps.org)

Short Courses/Workshops/Tutorials

Several short courses, workshops, and tutorials on topics of special and current interest will be solicited by the technical program committee an who wish to organize a short course, workshop, or tutorial should contact Jiro Hirokawa (jiro@ee.eitech.ac.jp), Douglas H. Werner (dhw@psu.edu), Shen Zhongxian (ezxshen@ntu.edu.sg), or Konstantina Nikita (knikita@ece.ntua.gr)

Sponsorships/Exhibits

We have many outstanding opportunities for sponsorships of the conference and its various aspects. Industrial, academic, government, software, and book exhibits will be open during the majority of the conference days as well. Interested parties should contact Lars Foged (lars.foged@mvg-world.com), Rod Waterhouse (rwaterhouse@octanewireless.com), and Sara Mugnaini (smugnaini@oneweb.net).

Special Sessions

Requests to organize special sessions for the conference should be submitted to Koichi Ito (ito.koichi@faculty.chiba-u.jp) and Raffaele Solimene (raffaele.solimene@unicampania.it) no later than October 15, 2023. Details of submission are posted on the conference website. Special sessions will be selected and finalized by Nov. 15, 2023. At that time, additional instructions will be provided to the organizers of the special sessions chosen for inclusion in the conference. The associated papers or abstracts will be due January 21, 2024.

Social Program

The social program for the AP-S/URSI 2024 Florence Conference includes a Welcome Reception, Students' and Young Professionals' Reception, Diversity and Inclusion Events, and an Awards Presentation and Social Event. There will also be private tours available, as well as a rich Accompanying Persons/Families Program. We will help attendees obtain Childcare Services as needed. For additional information, contact Giovanna Zanello (giovanna.zanello@cnit.it), Joanne Wilton (jjwilton@mindspring.com) and Shelley Uslenghi (shelly_uslenghi@yahoo.com)

JUST A FEW STEPS AWAY FROM FIRENZE FIERA:

WITHIN A 10 MIN WALK

Basilica di Santa Maria Novella

San Lorenzo Indoor Market

*Basilica della Santissima
Annunziata*

WITHIN A 15 MIN WALK

*Cathedral of Santa Maria del
Fiore (Duomo)*

Palazzo Strozzi

*Museo del Novecento (Museum
of the 20th Century)*

WITHIN A 20 MIN WALK

Uffizi Gallery

Piazza della Signoria

Ponte Vecchio

Palazzo Pitti

Santa Croce

FLORENCE, ITALY

EASY TO REACH, IN THE MIDDLE OF ITALY

BY CAR

Florence is located on the main Italian motorway (A1) connecting North to South Italy and it's easily reachable from every part of Italy.

BY PLANE

AMERIGO VESPUCCI AIRPORT – FLORENCE

Florence Airport is very well connected with all the European hubs of the main Air Alliances. It is located just 4 km from the city center, and it can be easily reached by taxi or a fast tramway in only 15 minutes from the city center.

GALILEO GALILEI AIRPORT – PISA

Pisa Airport is about 1 km from the Pisa Centrale railway station and is connected by the People Mover shuttle bus. Florence is about 1 hour away by train.

CONFERENCE VENUE

FIRENZE FIERA CONGRESS & EXHIBITION CENTER where innovation, nature and creativity meet. A unique exhibition and congress area in the world, in the heart of Florence, a stone's throw from the Duomo and next to the central station of Santa Maria Novella. From the laying of the first stone of the Fortezza da Basso in 1534 to the eco-sustainable renovation of the Palazzo degli Affari in 2021, constant innovation has been the leitmotiv of the Firenze Fiera Exhibition and Congress district. www.firenzefiera.it/en

BY TRAIN

Thanks to the fast train networking, you can easily reach all the other Italian destinations. Conference delegates can get to:

Bologna in 30 minutes

Rome in 90 minutes

Milan in 100 minutes

Venice in 120 minutes

Naples in 150 minutes

Turin in 180 minutes

Accommodations

Florence is a walking city! 75% of hotels are within walking distance from the Congress Citadel. There are 200+ properties located in the Historical City Centre.



2024 CALL FOR PAPERS

IEEE AP-S INTERNATIONAL SYMPOSIUM/ ITNC-USNC-URSI RADIO SCIENCE MEETING

