

CALL FOR PAPERS - IEEE Antennas & Propagation Magazine

Special Issue on "HF Radio Systems and Techniques"

Scope of Topics and Interest

Up to the 1960's most telecommunication between the continents was realized by large HF (3 to 30 MHz) radio systems especially built for that purpose, using the ionosphere as a natural high altitude 'reflector'. Inventions such as adaptive beamforming, antenna diversity, and frequency diversity stem from the 1930's, an impressive achievement considering the technology of that time.

HF telecommunication has gradually ceded its prominent place in daily life to satellite transponders and trans-oceanic glass fiber cables. However, it remains important for specific applications such as emergency communications, defense applications, communication in remote regions, and humanitarian projects in developing countries.

Modern technology enables advances in HF radio research and applications and a significant cost reduction. Several research groups around the world continue to work on the improvement of HF radio systems and techniques, and on the gathering of specific knowledge in the domain of antennas and propagation that is needed to realize those improvements.

To increase exposure of this research the IEEE Antennas & Propagation Magazine announces a Special Issue on 'HF Radio Systems and Techniques', to be published in December 2016. Focus of this publication will be on radio applications in the frequency range from 3 to 30 MHz. The following subjects are given to globally define the area of interest.

Radio Wave Propagation

- Ionospheric propagation (long range propagation, Near Vertical Incidence Skywave, sporadic E-layer reflection, propagation in a disturbed ionosphere, propagation above the basic MUF, characteristic wave propagation, fading mechanisms).
- Non-ionospheric propagation (ground wave propagation, scattering).
- Modeling and verification (prediction, simulation, ray-tracing, measurements).
- Regional differences (mid-latitudes, auroral zone, equatorial zone).

Radio Noise

- Noise sources (geographical, level, diurnal variation).
- Propagation of radio noise (mechanism, angular distribution, polarization).
- Mitigation techniques.

Antennas

- Antenna design (compact antennas, antenna gain optimization, band width optimization, antenna pattern optimization).
- Receive antennas (SNR optimization, dynamic range).
- Polarization (polarization fading mitigation, polarization matching, characteristic wave diversity).
- Antenna arrays (direction finding, interference mitigation, adaptive beamforming, angular filtering, multipath fading mitigation, MIMO).
- Antenna measurement (scale models, full-scale antennas, in-situ with real propagation).

Radio Channel

- Channel models (characteristic wave channels, partial reflections in multiple layers, noise, antenna influence).
- Channel simulators (characteristic wave channels, partial reflections in multiple layers, channel recording and playback).
- Measurements (signal strength, fading, SNR, Doppler, time dispersion).

Radio Systems

- Direction finding and localization.
- Communication systems (high throughput, weak signal, high reliability, low latency, low power).
- Scientific research.

Manuscript Submission & Publication

Prospective authors are invited to submit contributions reporting on their current research on the above topics. Each paper will be evaluated by at least three reviewers of IEEE APS according to their technical quality, relevance, results, and contributions.

Between 4 and 7 feature articles can be accommodated, depending on their size and quality. Both direct invitations and a public call for papers have been sent. Beside the review criteria already stated, the selection will also consider the balance between propagation and antenna articles, the spread over different areas of interest and geographical regions.

Manuscripts must be submitted via Manuscript Central (<https://mc.manuscriptcentral.com/apm-ieee>). The authors will need to select the Manuscript Type, "Original Article - HF Radio Systems Special Issue," and, preferably, mention the special issue in their cover letter.

When they are submitted, the authors will need to select the Manuscript Type, "Original Article - HF Radio Systems Special Issue," as well as, preferably, mentioning the special issue in their cover letter.

Important Dates

- First submission deadline 1 February 2016
- Notification of first decision 1 May 2016
- Revision submission deadline 1 July 2016
- Notification of final decision 1 August 2016
- Issue of publication December 2016

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