

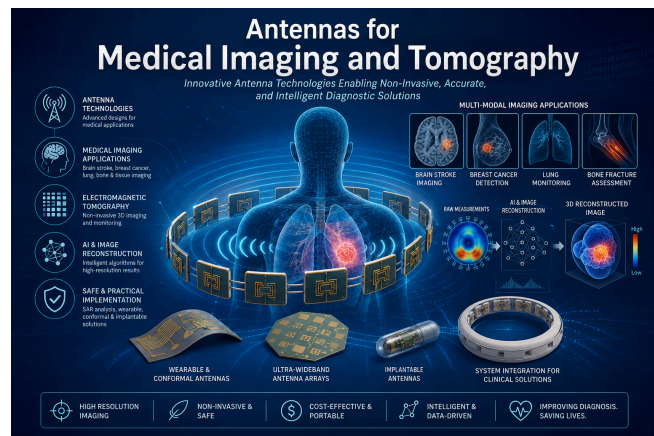


## Call-for-Paper

### Special Section on Antennas for Medical Imaging and Tomography

Submission deadline: June 15, 2027

**Aims & Scope:** Antennas play a crucial role in the advancement of modern medical imaging and tomography systems, enabling non-invasive, low-cost, portable, and high-resolution diagnostic technologies. This Special Section, "Antennas for Medical Imaging and Tomography," aims to bring together recent developments in antenna design, electromagnetic sensing, microwave and millimeter-wave imaging, and tomographic reconstruction for biomedical and healthcare applications. We especially welcome original research articles presenting novel antenna structures, arrays, wearable or conformal antenna systems, ultra-wideband and microwave imaging techniques, and electromagnetic tomography methods for medical diagnosis and monitoring. Submissions may address applications such as breast cancer detection, brain stroke imaging, bone fracture assessment, lung monitoring, tissue characterization, hyperthermia treatment planning, and other emerging biomedical imaging scenarios. Studies combining antenna hardware with advanced signal processing, artificial intelligence, machine learning, inverse scattering, image reconstruction, and computational electromagnetic modeling are strongly encouraged. Experimental validation, phantom-based studies, clinical feasibility assessments, and system-level demonstrations are particularly welcome. The Special Section also invites high-quality review articles that summarize the current state of the art, identify key challenges, compare existing technologies, and highlight future research directions in antennas and electromagnetic techniques for medical imaging and tomography.



**Potential topics** Potential topics include but are not limited to the following:

- Antenna design and optimization for microwave, millimeter-wave, and terahertz medical imaging systems
- Ultra-wideband, wearable, flexible, conformal, and implantable antennas for biomedical sensing and diagnostic applications
- Antenna arrays, MIMO antennas, and beamforming techniques for high-resolution medical imaging and tomography
- Microwave and electromagnetic tomography for breast cancer detection, brain stroke diagnosis, lung monitoring, and tissue characterization
- Integration of antennas with artificial intelligence, machine learning, inverse scattering, and advanced image reconstruction algorithms
- Experimental validation using tissue-mimicking phantoms, numerical human-body models, and pre-clinical or clinical feasibility studies
- Antenna-enabled systems for hyperthermia treatment planning, therapeutic monitoring, and image-guided biomedical applications
- Safety, specific absorption rate analysis, miniaturization, and practical implementation challenges in medical antenna systems

**Keywords:** Medical imaging antennas; Microwave Tomography; Biomedical sensing; Ultra-wideband antennas; Electromagnetic imaging; Image reconstruction; Wireless Diagnostics; Biotelemetry; Digital Health; Remote Healthcare

#### Guest Editors:

Sultan Shoaib, Gulf University for Science and Technology, Kuwait, [shoaib.s@gust.edu.kw](mailto:shoaib.s@gust.edu.kw); Noshawan Shoaib, National University of Science and Technology, Pakistan, [noshawan.shoaib@seecs.edu.pk](mailto:noshawan.shoaib@seecs.edu.pk); Ihssan S. Masad, Gulf University for Science and Technology, Kuwait, [masad.i@gust.edu.kw](mailto:masad.i@gust.edu.kw); Xiaodong Chen, Queen Mary University of London, UK, [xiaodong.chen@qmul.ac.uk](mailto:xiaodong.chen@qmul.ac.uk); ; Riqza Khattak, University of Huddersfield, UK, [riqza.khattak@hud.ac.uk](mailto:riqza.khattak@hud.ac.uk); Masood ur Rehman, University of Glasgow, UK, [masood.urrehman@glasgow.ac.uk](mailto:masood.urrehman@glasgow.ac.uk)

The review process of each Special Section paper starts upon submission and accepted papers immediately appear on IEEE Xplore®, forming an expanding collection of reference material on emerging topics in Antennas and Propagation.

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