

Special Issue on

Advances in 3D Printing of Radio Frequency, Microwave, and mmWave Components and Systems

CALL FOR PAPERS

Many advances in technology today rely on progress in 5G and Internet of Things (IoT) technology. To fuel this, we need cost-effective radio frequency (RF), microwave (MW), and millimeter wave (mmWave) devices. Additive manufacturing allows diverse 3D printing strategies to create unparalleled design flexibility. Additive manufacturing and 3D printing also allow us to imagine intricate and complex 3D shapes, unattainable with traditional methods, capable of achieving surprising performance and paving the route to innovative applications. This innovation sparks opportunities in telecommunications, sensors, biomedicine, and space. However, translating these strides into real-world products poses several engineering challenges.

Challenges include the development and characterization of new materials for the 3D printing of electromagnetic (EM) devices, the intricate theoretical and numerical design of 3D-printed RF, MW, and mmWave devices, the refinement and tuning of 3D printing manufacturing processes, and the comprehensive characterization of these devices. Research is therefore needed to investigate the current state-of-the-art in additive fabrication and rapid prototyping technologies, and to explore the use of novel materials, such as polymers, ceramics, and composites, for the 3D printing of EM devices.

This Special Issue aims to gather works proposing innovative methodologies and novel applications in the 3D printing of RF, MW, and mmWave devices. We hope to collect innovative contributions from leading experts in the fields of engineering, physics, and material sciences on the design, advanced manufacturing with rapid prototyping approaches, and characterization of 3D RF, MW and mmWave EM devices, such as antennas, filters, or sensors.

Potential topics include but are not limited to the following:

- ▶ Manufacturing approaches, such as inkjet printing, selective laser sintering (SLS), and fused deposition modeling (FDM)
- ▶ 3D printed antennas
- ▶ New materials for 3D-printing RF, MW, mmWave components
- ▶ Dielectric and metal additively manufactured structures
- ▶ New manufacturing techniques for RF, MW and mmWave materials
- ▶ Electromagnetic characterization of 3D printing materials
- ▶ Characterization of 3D printed RF, MW and mmWave devices
- ▶ 3D printing of MW and mmWave filtering devices
- ▶ Theoretical and numerical modeling of 3D-printed RF, MW and mmWave devices
- ▶ Innovative applications of 3D-printed RF, MW and mmWave devices, such as Cubesat antennas, biomedical devices, or sensors

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.wiley.com/submit?specialIssue=721428>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

Lead Editor

Matteo Bruno Lodi, University of Cagliari, Cagliari, Italy
matteob.lodi@unica.it

Guest Editors

Giacomo Muntoni, University of Cagliari, Cagliari, Italy
giacomo.muntoni@unica.it

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