

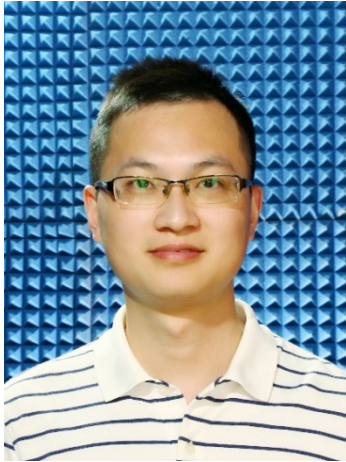
PhD Oral Defense

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Thesis Title

3-D Printed Dielectric Resonator Antennas for Wireless Communications



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Abstract

Dielectric resonator (DR) antenna (DRA) has attracted tremendous research interest over the past few decades due to its advantages of compact size, ease of excitation, and high efficiency. Normally, the DRA must be machined to a certain shape from a large ceramic block with single dielectric constant, and hence its fabrication is generally complex and costly. Inevitably, this traditional mechanical fabrication technique limits DRA development. Meanwhile, three-dimensional (3-D) printing technology, or called additive manufacturing, is an exciting research field that has progressed considerably in recent years. A number of 3-D-printed passive components, such as horn antennas, lens antennas, reflectarrays, and waveguides, have been reported. However, limited studies have been conducted on the 3-D-printed DRA. In this thesis, three new types of 3-D-printed DRAs are designed and investigated.