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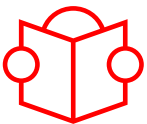
UNIVERSITEIT VAN PRETORIA
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Faculty of Engineering, Built Environment and
Information Technology

Research field

Electronic Engineering

PhD title

**Additive manufacturing of exotic
materials for microwave devices**



Keywords

- Additive manufacturing
- Dielectric materials
- Ferrites
- Waveguides

Summary

Microwave devices such as antennas and waveguides have become ubiquitous in the modern society. These devices have traditionally been fabricated with subtractive processes. The recent boom in additive manufacturing technologies has opened the door to possible rapid prototyping of microwave devices with techniques such as 3D printing. 3D printing may also provide the impetus to design with new materials and reduce the need for multi-part assemblies. This study will

focus on the identification of additive manufacturing materials for microwave design. This project will then involve the electrical characterisation of these new and existing 3D printable materials for microwave characteristics. Materials with known characteristics can be used in the design of bespoke microwave devices. The materials will be used to synthesise microwave device designs, and these will be evaluated for performance under measurement, in comparison to similar designs in classical materials.



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