

Postdoctoral Fellowship in Additive Manufacturing of mm-Wave Circuits and Systems
University of Pretoria

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Posted May 13, 2021, set to expire Sep. 12, 2021

Job Title	Postdoctoral Fellowship in Additive Manufacturing of mm-Wave Circuits and Systems
Department	EEC Engineering http://www.up.ac.za/eece
Institution	University of Pretoria Pretoria, Gauteng, South Africa
Date Posted	May 13, 2021
Application Deadline	Jul. 1, 2021
Position Start Date	Available Immediately
Job Categories	Post-Doc
Academic Field(s)	Material/Metallurgy Manufacturing & Quality Engineering Industrial & Systems Engineering Electrical and/or Electronics
Apply By Email	tinus.stander@up.ac.za

Job Description

The Carl and Emily Fuchs Institute for Microelectronics at the University of Pretoria, South Africa, is embarking on a new research project to establish design and production techniques for microwave and mm-wave systems using state-of-the-art additive manufacturing technologies. To spearhead this work, the Institute is looking to appoint a postdoctoral fellow to identify feasible, low-cost and environmentally friendly processes and materials for additive manufacturing of planar circuitry, waveguide components and enclosures in service of mm-wave applications. The fellowship will focus on pathfinder experiments, establishing tools and techniques which will then be applied in design by PhD and MEng students involved in the project, thereby reducing development risk. Characterization and testing regimes covered in this fellowship may extend to reliability analysis, as well as characterization under stressed conditions. The environmental impact of materials and processes will also be assessed, with particular consideration to reduced e-waste.

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Although the prospective fellow is encouraged to set and execute their own research agenda within this framework, the following avenues of inquiry are anticipated:

- Environmentally friendly, low-cost and reliable methods of using additive manufacturing to create mm-wave waveguide parts and assemblies.
- The use of printed electronics for flexible and wearable mm-wave systems using paper, screen printing and inkjet / aerosol jet printing.
- Advanced concepts in functional packaging of mm-wave systems, combining single-print planar circuits and enclosures with waveguide functionalities.
- Defining, and developing concept demonstrator application systems using these techniques.

The successful candidate will have a PhD in Electronic Engineering, Materials Science, Industrial Engineering, or an otherwise related field. From candidates with an EE background, a strong background in electromagnetics or high frequency electronics is mandatory, as is experience with EM simulation packages and measurement techniques. For candidates in Materials Science, Industrial Engineering or related disciplines, prior experience in printed electronics and / or additive manufacturing is required. Proficiency in both spoken and written English is obligatory, as the fellow will be required to serve as liaison to local industry, users, and local communities, to identify and leverage local capabilities in production. Prior experience in student supervision (undergraduate or graduate) would be advantageous.

Interested applicants may e-mail the following documents to the contact address listed below:

- Cover letter, outlining the candidate's interest in the field
- CV, including a list of publications
- Copy of academic transcripts
- Copy of, or download link for, the candidate's PhD thesis.

EEO/AA Policy

The University of Pretoria is committed to equality, employment equity and diversity.

Contact Information

Please reference Academickeys in your cover letter when applying for or inquiring about this job announcement.

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