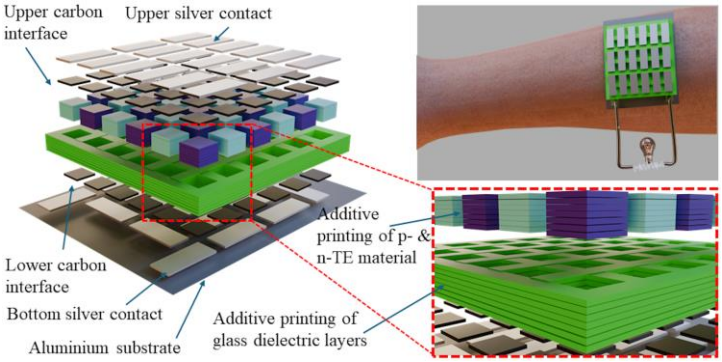
Lichttechnisches Institut
Engesserstrasse 13
Geb. 30.34
76131 Karlsruhe
www.lti.kit.edu

Bachelor/Masters thesis

3D printed thermoelectric generators for self-powered IoTs



Job description

Printing technology is valued for its potential in manufacturing low-cost and shape-conformable electronic devices. Hence, the development of high efficiency printable thermoelectric (TE) materials could lead to low-cost production of shape-conformable printed TE generators (TEGs) overcoming the limitations associated with the bulk devices. Currently, the thermoelectric research group at LTI, conducts research on both experimental and theoretical aspects of TE materials and devices. The group is engaged in studying the thermo-transport behaviours of inorganic-based printed TE materials to fabricating high performance printed TEGs. The objective of the research is to develop printable inks and fabricate fully printed TEGs for battery-free self-powered IoT devices.

In order to strengthen our team, we are looking for a Bachelor/Master student who could contribute in our work, in particular with the task of detailed investigation of rheology of TE inks and their TE properties. S/He will also involve in fabricating 3D printed TE devices by dispenser 3D printing.

Qualification

The prerequisite for joining the group is a student in Materials Science, Chemistry and Physics or related disciplines. Very good knowledge of materials chemistry and physics, solid-state physics and established measurement methods (XRD, SEM, TEM) is helpful. Experience with the design and construction of measuring stations as well as the enjoyment of experimental work in the laboratory are desirable.

Application

Send your application with CV to email mofasser.mallick@kit.edu

The KIT attaches great importance to the professional equality of women and men. We would therefore be particularly pleased to receive applications from women. Severely handicapped applicants will be given preferential consideration if they are suitably qualified.

Area of research
3D Printed thermoelectrics

Type of work
Experimental

Field of studies
Materials Science, Physics and Chemistry

Starting date
As soon as possible

Contact person
Dr. Mofasser Mallick
Engesserstr 13
Geb.Nr. 30.34
Room 013

Telephone:
+49 721 608-45653
E-Mail:
mofasser.mallick@kit.edu

Reference

Milliwatt-scale 3D thermoelectric generators via additive screen printing, Energy Environ. Sci., 2025.