**Title: Oxide-based Transversal Thermoelectric Energy Harvesters**

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***Abstract***

Oxides suitable for thermoelectric devices are in the focus since almost 20 years. Although the figure of merit of thermoelectric oxides is inferior to the best reported thermoelectric materials specific aspects related to potential application conditions in air at high temperatures keeps up the interest for this material group. In addition, the applicability of large scale ceramic technologies for the production of oxide-based thermoelectric devices can be considered as an advantage of the corresponding material group. We report the fabrication and properties of monolithic transversal thermoelectric energy harvesters based on the combination of a thermoelectric oxide and a metal. The theoretical background of the transversal thermoelectric effect will be discussed briefly, particularly for comparison with the common longitudinal thermoelectric effect. Device layouts and fabrication technologies are explained in detail. Furthermore, numerical simulation data are used to study the influence of device parameters. Experimental results of the fabricated devices will be presented.

***Biography***

Dr. Steffen Teichert is a physicist and received his doctoral degree from the TU Chemnitz (Germany) for a work on polycrystalline semiconducting silicide thin films in 1996. During his postdoc phase he extended these activities to the epitaxy of silicides for different applications including thermoelectrics. In 2001 he joined Freiberger Compound Materials, a world leading supplier of GaAs wafers. After one year as development engineer he became Vice President for Marketing and Application. In 2005 Dr. Teichert moved to the 300 mm DRAM fab of Infineon Dresden. As Principal for materials and failure analysis he was responsible for corresponding topics in the ongoing development of DRAM. After a short period at the Fraunhofer Center for Nanotechnologies he became in 2009 a full Professor of Materials Analysis and Physics at the University of Applied Sciences Jena, Germany. Since 2013 he acts there as the dean of the department SciTec. His current research interests are related to thermoelectric energy conversion mainly based on ceramic bulk materials. In addition, he has a focus on microstructural investigations, particularly with electrons and X-rays in diffraction experiments.