Chair of Analogue Circuits and Image Sensors

Universität Siegen

Circuits and Sensors Seminar

State-of-the-art in Mode-Localized MEMS Coupled Resonant Sensors

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When: 12:00, Tuesday 6th April 2021

Where: Online

https://uni-siegen.zoom.us/j/98289549916

Abstract

This scientific talk attempts to inform the audience the state-of-the-art in micro resonant sensing. Owing to the ultra-high parametric sensitivity, parallel-detection capability of multiple analytes and inherent immunity towards a false output, recently, a new trend is being pursued in the design and development of micro resonant sensors. Such architectures are based on the array of coupled resonators (CR) that exploits the principle of monitoring the shifts in the eigenmodes as the sensor output to precisely quantify the input physical quantities. Such sensors are also being used in the applications to identify/detect biomolecules and chemical analytes. Although such class of a sensor offers a potential due the advantages as mentioned before, it is also observed that there remain few challenges to overcome and therefore rapid progress is being made to attain other performance parameters such as ultimate resolution of the physical quantities, minimum detectable biomass as otherwise possible with single MEMS/NEMS resonating components.

Speaker Bio

Vinayak Pachkawade (Member, IEEE) received the B.E. (Hons.) degree in electronics engineering from Swami Ramanand Teerth Marathwada University, Nanded, India, in 2002, the M.S. degree in nanoengineering and microsystems from National Tsing Hua University, Taiwan, in 2012, and the Ph.D. degree from the University of Liege, Belgium, in 2020. From 2002 to 2010, he worked as a Researcher, a Teaching Assistant, and/or a Lecturer of Electronic Engineering at different institutes in India, including the Visvesvaraya National Institute of Technology (VNIT). In 2015, he worked at VNIT as a Visiting Engineer, and also as a Technical Consultant with SM Wireless Private Limited, India, where he provided design and managerial services for RF integrated circuits (ICs) projects. From 2015 to 2020, he worked as a Researcher with the Department of Electrical Engineering and Computer Science, University of Liege, where he worked on the micro-resonator design and fabrication for ultra-precise sensing applications. He currently works as an Independent Scientific Professorial and a Researcher in the field of physical sensing and microelectronics.

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