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PRESENTED BY THE WATERLOO INSTITUTE
FOR SUSTAINABLE ENERGY

Wednesday June 28, 2017

2:00 pm – 3:00 pm

DC 1302

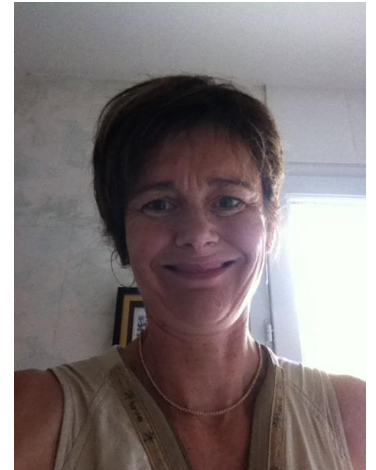
PRINTED MEMS: SENSORS, ACTUATORS OR ENERGY HARVESTERS PROCESSING WITH STANDARD OR MODIFIED SCREEN-PRINTING TECHNOLOGY

Hélène Debéda, Associate Professor, University of
Bordeaux, IMS Laboratory, PRIMS team

This presentation will discuss the research being done by the PRIMS team (**PR**inted **MemS**), including component design, application with characterization and modeling, and material patterning for the fabrication of printed microsystems with various targeted applications. Here, special attention will be paid to screen-printed MEMS applications. Among numerous technologies nowadays available for thick-films fabrication in microelectronics the very simple, flexible and cheap screen-printing equipment allows deposition of a large choice of materials on various substrates.

By using a sacrificial layer process, promising performances of free standing electroded PZT thick films for microsystems applications will be discussed. Applications for gas detection, actuation, structural health monitoring or energy harvesting will be presented. As well, printed resistive layers based on SnO₂, ZnO or black carbon have been used for gas detection. Finally, potentiality of carbon based organic cantilevers for gas sensing or energy harvesting will be highlighted.

Biography



Hélène Debéda received her PhD in materials engineering from the University of Bordeaux in 1996 for her work entitled, "*The selectivity and reliability of thick film methane gas sensors*". She returned to her alma mater as a faculty member in 2001 and is now an Associate Professor in the IMS Laboratory, and currently belongs to the Organic and MEMS group where her research focuses on alternative technologies to silicon for MEMS studies. Hélène also serves as Team Leader for the IMS technological platform TAMIS (Technologies Alternatives aux Microsystèmes Silicium).

She has authored 29 publications in international journals, 2 book chapters, and has 2 international patents. She has spoken at 58 international conferences, 9 invited talks and in the past three years has collaborated with researchers in Spain, Canada, Thailand and France.

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