Quartz MEMS - Only a matter of Time!

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The extraordinary stability of quartz resonators and accuracy of around 30 ms per year has made them the most ubiquitous time sensors. Micromachining quartz offers various new configurations and advantages for gravimetric, thermal, viscoelastic, and magnetic sensing. Specifically, this talk will demonstrate the applications of micromachined bulk acoustic wave resonators for gas identification through viscoelastic analysis of the chemosensitive layer upon absorption of gases, thermal infrared sensors and their applications for biochemical sensing and magnetostrictively coupled perturbations in the propagation of bulk acoustic waves for magnetic sensing. As we will see, no matter the configuration of the sensing application, quartz MEMS are only a matter of time!

Biography:

Srinivas Tadigadapa, is a Professor of Electrical Engineering and Bioengineering at the Pennsylvania State University. He obtained his Ph.D. from Cambridge University, UK in 1994. 1996-2000 he was Vice President of Manufacturing at Integrated Sensing Systems Inc., Michigan and was involved with the design, fabrication, packaging, reliability, and manufacturing of micromachined Coriolis mass flow sensors and pressure sensors. His current research interests include integrated heterogeneous materials based microsystems, bio and chemical sensors, and exploring electric and thermal transport at the micro-nano interfaces. He has been awarded the Alexander von Humboldt fellowship in Germany and the Walton Fellowship by the Science Foundation of Ireland. He is a life fellow of the Cambridge Philosophical Society, Fellow of the Institute of Physics, London, and IEEE.