

Silicon Carbide Micro-/Nanosystems for Harsh Environment Applications

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Silicon has been the dominant semiconducting material in micro-/nanosystems technologies. However, the material and surface properties of silicon impose limitations on its use in applications involving harsh environment (such as high temperature, high radiation and corrosive conditions). Silicon carbide (SiC), a wide bandgap semiconductor, is emerging as a material to address the limitations of silicon as it is temperature tolerant, radiation resistant, and chemically inert. In this talk, I will present recent advances, by our group and others, in the materials science and manufacturing technology of SiC thin film and low dimensional structures, and some applications that these advances have enabled ranging from harsh environment sensing to energy technologies.

Biography: Roya Maboudian is Professor of Chemical and Biomolecular Engineering and Co-Director of the Berkeley Sensor & Actuator Center (BSAC) at the University of California, Berkeley. Her research interest is in the surface, and materials science and engineering of micro/nanosystems, with applications in harsh-environment sensing, health and environmental monitoring, and energy technologies.

