The attendees of the lecture.

and the circuit was shown to have achieved an impressive 0.5°/h bias instability as well as angle random walk of 0.067°/√h.

Xu presented two high-performance inertial sensors that employed novel circuit approaches and delved into detailed mathematical analysis of key performance parameters. This is a cross-disciplinary system that needs the circuit designer to understand the physics of inertial sensing as well as the limitations due to the micro-dimensions of the sensors. With clever system-design approaches, Xu showed that MEMS inertial sensors are making a breakthrough in high-performance applications, creating a pathway to enable such applications on energy-constrained mobile devices. More than 25 participants from industry, research, and academic communities attended Xu's lecture. The audience showed keen interest to understand the mathematical analysis of the various parameters and the electrical test and measurement set-up that validate the performance.

—Muthukumaraswamy Annamalai Arasu
SSCS Singapore Chapter
—Chao Wang
SSCS Singapore Chapter

Azita Emami Gives Talk on Wearable and Implantable Biomedical Devices

The IEEE Antennas and Propagation Society, IEEE Solid-State Circuits Society, IEEE Microwave Theory and Techniques Society, IEEE Electron Devices Society, and IEEE Circuits and Systems Society hosted Dr. Azita Emami on 15 March 2018. The talk was held at the Qualcomm San Diego campus, and more than 90 people attended. The audience was very interested in the informative and intriguing work on which Emami and her team at the California Institute of Technology have been working.

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Abstract

Wearable and implantable medical devices can enable new approaches to the diagnosis and treatment of human diseases. The design and implementation of sensors and neural interfaces that are noninvasive or minimally invasive are essential for the viability of such devices. This talk focuses on miniaturized devices that are wireless and highly energy efficient. First an ultra-low-power sensor for continuous measurement of glucose and lactate will be presented.

Azita Emami

This minimally invasive wireless device can be injected just under the skin and is designed to have high dynamic range and high resolution. In the second example, a closed-loop neural interface for seizure detection and prevention is introduced. In this project, hardware efficient classification and feature extraction techniques are utilized to enhance the performance and energy efficiency of the system.

—Abira Sengupta