Applications of MEMS GHz Ultrasonic Communications and Sensing Technology

Abstract: As electronics are increasingly integrated into all aspects of our lives, two key challenges we face are how to ensure the security of integrated circuits through the manufacturing process and how to secure and protect the personal information processed through these circuits when they are deployed. As IC manufacturing moves off-shore, it is important to be able to ensure that adversaries are not able to access valuable intellectual property and designs through the manufacturing process or through physical access to fabricated chips. After devices are manufactured and are in use, it is also important to ensure that personal data from an integrated circuit cannot be intercepted by an adversary. In this talk, I will demonstrate how to use GHz ultrasonic chip-scale sonar technology to address these challenges with GHz ultrasonic communication links, sonic memory, and GHz ultrasonic fingerprint sensing.

Biography: Justin Kuo is a PhD student in Electrical and Computer Engineering at Cornell University in the SonicMEMS Laboratory (Lal group). He received his B.S. at Cornell University in 2012. He is an author or co-author of 11 conference papers on GHz chip-scale sonar technology, two of which have won best student paper awards at IEEE MEMS 2017 and IEEE International Ultrasonics Symposium 2014.

Date: April 20, 2018 (Friday)
Time:
- Refreshment at 12:00pm
- Talk begins at 12:15 pm
Place: Phillips 233

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