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Mixed-signal IC design for MEMS-based Systems

Dr. Fred Lee

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Friday October 25th, 3:30 – 5:00 PM, EEB 248

In the last decade, a boom in commercial MEMS-based sensors and products have found widespread adoption in our world. We will discuss mixed-signal IC architectures in four mainstream areas of MEMS-based systems: timing references, temperature sensors, accelerometers, and gyroscopes. Finally, we will conclude with forward-looking thoughts on how "the cloud" and humanity's desire for "passively aware intelligence" will grow the demand for many other sensor systems in the next decade and beyond.

Fred S. Lee received the B.S./M. Eng. and PhD degrees in Electrical Engineering and Computer Science all from the Massachusetts Institute of Technology (MIT), Cambridge, MA in 2002 and 2007, focusing on analog/RF circuits and low energy ultra-wideband radios. From 2007 to 2008, he was with Rambus Inc. in Los Altos, CA, working on multi-GHz wireline and 60GHz wireless transceivers. From 2008 to 2011, he was with SiTime, in Sunnyvale, CA, developing MEMS-based fractional-N PLLs, MEMS-based temperature sensors, and RF/mixed-signal circuits. Currently, he is with Fairchild Semiconductor, developing MEMS and sensor solutions. He was a co-recipient of the ISLPED Low Power Design Contest Award in 2002, DAC/ISSCC Student Design Contest Award in 2004 and the ISSCC Jack Kilby Best Student Paper Award in 2007.