



İTÜ Elektronik ve Haberleşme
Mühendisliği
Fotonik ve Elektronik Seminerleri
İTÜ VLSI Laboratory
**Photonics and Electronics
(Phoenics) Seminars**



13 Kasım 2015, Cuma, 14:15
İdris Yamantürk Konferans Merkezi – Oda 1301

Prof. Dr. Alper Demir

“Modeling and Analysis of Low Frequency Noise in Circuit
Simulation”

In this talk, we present the background on the nonstationary low frequency noise modeling problem, the legacy noise models, and our definitive solution for the problem based on a recently proposed computational modeling and analysis framework. Our model and simulation techniques were developed based on an analogy we have identified that relates low frequency noise in transistors and electronic circuits to stochastic behavior in neurons and chemical kinetics. We present results on circuit examples, namely switching MOSFET circuits and oscillators, which show that our computational models implemented in a circuit simulator correctly predict the impact of low frequency that match published measurement data, whereas the legacy noise models produce erroneous results.



Short Bio: Alper Demir received the BS degree from Bilkent University and the MS and PhD degrees from the University of California at Berkeley. Dr. Demir previously spent time at Motorola, Cadence Design Systems, Bell Laboratories Research, MIT, and UC Berkeley. He has been with Koç University in Istanbul since 2002. His work on noise won several best paper awards: 2002 Best of ICCAD Award, 2003 and 2014 IEEE/ACM William J. McCalla ICCAD Best Paper Award, and the 2004 IEEE Circuits & Systems Society Guillemin-Cauer Award. He was named an IEEE Fellow in 2012 for his contributions to stochastic modelling and analysis of phase noise.