

ELECTRICAL & COMPUTER ENGINEERING SEMINAR

“Communication Systems for Miniaturized Applications”

by

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LSC Virginia Dale Room

Abstract & Biography

Abstract. As the evolution of wireless communication systems continues to unfold, there is a steady trend toward smaller and more ubiquitous devices. As a natural consequence, devices are subject to increasingly stringent constraints on size, weight, and power (SWaP). Because advances in miniaturization and battery technology are slow compared to trends such as "Moore's Law," there is great interest in communication technologies that are friendly toward miniaturization. In this talk, we present some recent applications involving continuous phase modulation (CPM), which is compatible with nonlinear power amplifiers and is thus miniaturization friendly. The first application is an orthogonal frequency division multiple access (OFDMA) architecture that has a very low peak to average power ratio (PAPR). The second application is a multiple-input multiple-output (MIMO) framework for CPM. We discuss the performance of these systems and the advantages they have in future communication applications.

Biography. Erik Perrins is an Assistant Professor in the Department of Electrical Engineering & Computer Science at the University of Kansas. He received the B.S., M.S., and Ph.D. degrees from Brigham Young University, Provo, UT, in 1997, 1998, and 2005, respectively all in electrical engineering. From 1998 to 2004, he was with Motorola, Inc., Schaumburg, IL, where he was engaged in research on land mobile radio products. Since August 2005, he has been at his present position at KU. Since 2004, he has also been an Industry Consultant on reduced-complexity receiver design, receiver synchronization, and a number of prototyping projects. His current research interests include digital communication theory, advanced modulation techniques, synchronization, channel coding, and effective digital architectures for receiver implementation. He is a Senior Member of the IEEE and currently serves as an Editor for the IEEE Transactions on Communications.

Please contact Prof. Ali Pezeshki, pezeshki@engr.colostate.edu, with any questions.