



Illinois Center for Wireless Systems

ICWS Seminar Series

INTERFERENCE ALIGNMENT: FROM DEGREES-OF-FREEDOM TO CONSTANT-GAP CAPACITY APPROXIMATIONS

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4:00 p.m.
141 Coordinated Science Lab

Abstract: Interference alignment is a key technique for communication networks with multiple interfering links. For several such networks, interference alignment was used to characterize the asymptotic behavior of channel capacity as signal-to-noise ratio goes to infinity. However, these so-called degrees-of-freedom capacity approximations are often too weak to make accurate predictions about the behavior of channel capacity at finite signal-to-noise ratios. In this talk we significantly strengthen these results by showing that in some situations interference alignment can be used to approximate capacity to within a constant gap.

This is joint work with Mohammad Maddah-Ali.

Biography: Urs Niesen received the M.S. degree from the School of Computer and Communication Sciences at the Ecole Polytechnique Federale de Lausanne (EPFL) in 2005 and the Ph.D. degree from the department of Electrical Engineering and Computer Science at the Massachusetts Institute of Technology (MIT) in 2009. He is currently a member of technical staff at Bell Labs, Alcatel-Lucent. His research interests are in the areas of communication and information theory.