



**Electrical Engineering Colloquium**  
**Dallas Chapter of IEEE Signal Processing Society Presents**

***Transmission Capacity: Characterizing ad hoc  
networks with stochastic geometry***

**Dr. Jeffrey Andrews**  
**University of Texas at Austin**

**2pm, Friday, April 4, 2008**  
**ECSS 2.305**

In this talk we introduce a new stochastic measure of wireless ad hoc network capacity, the transmission capacity, and show how it is a logical extension of previous metrics for ad hoc network capacity. Using stochastic geometric tools, closed-form bounds for different communication techniques are presented. In particular, we contrast direct-sequence spread spectrum, frequency hopping, and successive interference cancellation (SIC) with conventional transmission techniques. We also develop results that imply how multiple antennas should be deployed in a decentralized network.

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Jeffrey G. Andrews is an Assistant Professor in the Department of Electrical and Computer Engineering at the University of Texas at Austin, where he is the Director of the Wireless Networking and Communications Group (WNCG). He received the B.S. in Engineering with High Distinction from Harvey Mudd College in 1995, and the M.S. and Ph.D. in Electrical Engineering from Stanford University in 1999 and 2002, respectively. He developed Code Division Multiple Access (CDMA) systems as an engineer at Qualcomm from 1995 to 1997, and consulted for Microsoft, Palm, Ricoh, ADC, and NASA. Dr. Andrews serves as an associate editor for the IEEE Transactions on Wireless Communications and is the co-author of the popular textbook, Fundamentals of WiMAX {Prentice-Hall, 2007}. He is the recipient of the Brasfield Endowed Fellowship in Engineering and the NSF CAREER Award (2007). He leads a 13-faculty, 8 university team in DARPA's Grand Challenge on Information Theory for Mobile Ad Hoc Networks (IT-MANET).

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