BCWS Seminar Series

Spatially-Correlated Shadowing, and Interference from Large Wireless Networks

by
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Time: Wednesday, October 28, 1:30 - 2:30 pm
Place: Room 4356, Mackenzie Building, Carleton University

Abstract: We will start with a brief discussion why good channel modeling is important. After a short overview of wireless cellular propagation modeling, focusing on the phenomenon of shadowing, we will discuss spatial correlation in shadowing, its physical origin and importance in wireless research. We will examine types of correlation models, and will show how not all models in literature are mathematically valid, and why validity is important. One correlation model in particular will hold our interest, for its very agreeable mathematical and physical properties.
We will then examine some algorithms for simulating correlated shadowing and show how such simulations can be scaled for large numbers of interferers. We will then consider interference problems with a large number of interferers, and argue that modeling correlation in shadowing is essential in such problems. We will conclude with some analytical methods for approximately predicting the total interference distribution for a large number of interferers.

Biography: Sebastian S. Szyszkowicz received a B.A.Sc. in Electrical Engineering from the University of Ottawa in 2003 and a M.A.Sc. from Carleton University in 2007, and is currently in his third year of Ph.D. studies at Carleton University under Dr. Halim Yanikomeroglu. He is the recipient of the NSERC PGS M and PGS D, and OGSST awards. He has given several invited talks about his Ph.D. research in Europe and Canada and parts of his work are in joint collaboration with the University of Edinburgh, UK, and the University of l'Aquila, Italy.