Organized by: Vehicular Technology (VT06)

User Scheduling for Heterogeneous Multiuser MIMO Systems: A Subspace Viewpoint

Dr. Edward Au

Biography:
As a Principal Engineer of Huawei Technologies, Edward has worked on research and product development on cognitive radio networks, 100Gb/s-and-beyond optical long-haul communications as well as fixed wireless transmission system. He is now taking care of Huawei's standardization activity and involved in product development in WLAN. Edward is actively participated in standardization organizations and industry forums: He is a Vice Chair of Network Power Save Technical Task Group and the primary technical and financial contact of Huawei for Wi-Fi Alliance. He was an active contributor of Optical Internetworking Forum (OIF), where he was a co-editor of the channel coding project for 100Gb/s DWDM optical transmission systems, and a member of Speakers Bureau in representing OIF at industry and academic events. Edward was also a working group secretary of IEEE 802.22 â€“ the first international standards on cognitive radio networks. Edward is currently an Associate Editor of IEEE Transactions on Vehicular Technology and Journal of Electrical and Computer Engineering. He has served as a leading guest editor for the IEEE Communications Magazine Feature Topic on Advances in IEEE Standards and Testbeds for Cognitive Radio Networks. He is also a founding member of Shenzhen Chapter, IEEE Communications Society.

Abstract:
In downlink multiuser multiple-input multiple output systems, users are practically heterogeneous. However, many existing user-scheduling algorithms are designed with an implicit assumption that users are homogeneous. In this seminar, we revisit the problem by exploring the characteristics of heterogeneous users from a subspace viewpoint. With an objective of minimizing interference non-orthogonality among users, three new angular-based user-scheduling criteria are proposed. Aiming to capture fairness among heterogeneous users while maintaining multiuser diversity gain, two new hybrid user-scheduling algorithms, whose computational complexities are only linearly proportional to the number of users, are proposed. (It is a joint work with Xinping Yi, EURECOM.)

Location: EIT 3151/3153, University of Waterloo

Date: Monday - Jan 09, 2012  Time: 10:30

Invited by: Prof. Weihua Zhuang