

Title: Distributed Resource Allocation with Local CSI Overhearing and Scheduling Prediction for OFDMA Heterogeneous Networks

Speaker: Megumi Kaneko

Time & Location: Monday, July 27 at 11:00 a.m. ECE 202.

Abstract:

In this work, we propose a resource allocation method for the downlink of an OFDMA-based macrocell/femtocell overlaid Heterogeneous Network (HetNet). To mitigate the interference caused by Femtocell Base Stations (FBS)s on nearby Macrocell Users (MU)s, conventional methods rely on the information of the interference channel states as well as MU allocation mapping provided by a control channel, causing a substantial overhead increase. Instead, the proposed methods enable the FBS to predict the subchannels likely to be used by its neighbor MUs, based on their locally overheard Channel State Information (CSI), and to set appropriate constraints on those subchannels. The simulation results demonstrate the validity of our analysis for MUs' allocation estimation error probability and threshold optimization. By letting the FBS fully reuse the subchannels estimated to be free from nearby MUs, the proposed methods efficiently mitigate the interference from FBSs to nearby MUs, while drastically decreasing signaling overhead compared to conventional methods.

Bio:

Megumi Kaneko received her B.S. and MSc. degrees in communication engineering in 2003 and 2004 from Institut National des Télécommunications (INT), France, jointly with a MSc. from Aalborg University, Denmark, where she received her Ph.D. degree in 2007. From January to July 2007, she was a visiting researcher in Kyoto University, Kyoto, Japan, a JSPS post-doctoral fellow from April 2008 to August 2010, and a Digiteo visiting professor in Université Paris-Sud XI, LRI, from May to July 2012. She is currently an Assistant Professor in the Department of Systems Science, Graduate School of Informatics, Kyoto University. Her research interests include wireless communication, radio resource allocation and cross-layer protocol design. She received the 2009 Ericsson Young Scientist Award, the IEEE Globecom 2009 Best Paper Award, the 2011 Funai Young Researcher's Award, the WPMC 2011 Best Paper Award and the 2012 Telecom System Technology Award.