

2015 IEICE Society Conference in Tohoku University

Tutorial Session (BT-4)

Fundamental Study on 5G and Introduction of Latest Research Activity in Europe

Date : September 8 (Tue) 13:00–16:20 (First Day of Conference) SR·RCS Joint

—Live streaming! Please access the URL below during the session —

<http://www.ieice.org/cs/sr/eng/>

Title :

Coordinated Multiantenna Interference Management in 5G Networks

Summary: The target of the tutorial is to achieve an understanding on the bounds and the behavior of wireless networks with inter-node interference. First, a brief introduction is given on the fundamentals of multi-user/cell MIMO communications and its analysis via random matrix theory in Massive MIMO setups in particular. Subsequently, practical solutions are introduced to handle different quality of service constraints and optimization criteria. Particular emphasis is put on decentralized interference and traffic aware linear transceiver design and resource allocation with limited backhaul. Finally, coordinated interference management in practical dense TDD networks is addressed. Specific use cases related to massive MIMO deployments, network controlled D2D and Dynamic TDD are discussed in detail.

Reference :

D. N. C. Tse et al., "Fundamentals of Wireless Communication". Cover et al., "Elements of Information Theory". Boyd et al., "Convex Optimization". Stefania Sesia et al., "LTE - The UMTS Long Term Evolution: From Theory to Practice, 2nd Edition".

*** The lecture is in English. The handout will be distributed at the session.**

Speaker:

Dr. Antti Tölli

Academy Research Fellow, Adjunct Professor,
Centre for Wireless Communications, University of Oulu, Finland



♪ Information of Dr. Antti Tölli ♪

Hobby: Playing jazz and other types of music in a Big Band. I mostly play tenor saxophone but also baritone saxophone. Also, I do all kind of sports, for example, kitesurfing, windsurfing, downhill skiing, cross-country skiing, etc.

Favorite Japanese food : Sushi, Yakiniku

Message from Dr. Antti Tölli :

I'm delighted to have this opportunity to give a tutorial and share some ideas on coordinated interference management with Japanese colleagues. I hope the tutorial session will be highly interactive and will provide the audience with some exciting new research ideas. As a long-term fan of Japanese culture and culinary art, I'm very excited to revisit Japan again. Looking forward to meeting you soon!

Dr. Antti Tölli is a TPC co-Chair in SmartCom 2016, which is held in Oulu, Finland. Please come and join the tutorial!