1. Bio:

Lingyang Song (S'03-M'06-SM'12) received his PhD from the University of York, UK, in 2007, where he received the K. M. Stott Prize for excellent research. He worked as a research fellow at the University of Oslo, Norway, and Harvard University, until rejoining Philips Research UK in March 2008. In May 2009, he joined the School of Electronics Engineering and Computer Science, Peking University, China, as a full professor. His main research interests include MIMO, cognitive and cooperative communications, physical layer security, and wireless ad hoc/sensor networks.

Dr. Song published extensively and wrote 3 text books. He is the recipient of 2012 IEEE Asia Pacific (AP) Young Researcher Award, and received 7 best paper awards, including the best paper award in IEEE International Conference on Wireless Communications, Networking and Mobile Computing (WCNM 2007), the best paper award in the First IEEE International Conference on Communications in China (ICCC 2012), the best student paper award in the 7th International Conference on Communications and Networking in China (ChinaCom2012), the best paper award in IEEE Wireless Communication and Networking Conference (WCNC2012), the best paper awards in International Conference on Wireless Communications and Signal Processing (WCSP 2012), the best paper awards in IEEE International Conference on Communications (ICC 2014), and the best paper awards in IEEE Global Communication Conferences (Globecom 2014).

Dr. Song is currently on the Editorial Board of IEEE Transactions on Wireless Communications, China Communications, and Journal of Network and Computer Applications. He served as the TPC co-chairs for the International Conference on Ubiquitous and Future Networks (ICUFN2011 and ICUFN2011) and registration co-chair for the 1st IEEE International Conference on Communications in China (ICCC2012). He served as symposium co-chairs for International Wireless Communications and Mobile Computing Conference (IWCMC 2009 and 2010), IEEE International Conference on Communication Technology (ICCT 2011), IEEE International Conference on Communications (ICC 2014).

Dr. Song is a senior member of IEEE, and an IEEE distinguished lecturer since 2015.

2. Talk title:

- Device-to-device Communications

Abstract: Mobile data traffic, especially mobile video traffic, has dramatically increased in recent years with the emergence of smart phones, tablets, and various

new applications. It is hence crucial to increase network capacity to accommodate these bandwidth consuming applications and services. D2D communication, which has been listed in 3GPP as a study item, is a promising concept to improve user experiences and resource utilization in cellular networks, both for licensed and unlicensed spectrum. Specifically, the mobile devices can either compete or cooperate with each other to reuse the radio resources so that either an individual or a group objective can be achieved. Game theory, a mathematical tool to study interaction among rational entities, can be employed to model and analyze individual or group behavior of nodes for allocating radio resources in wireless networks. Meanwhile, game models can provide distributed solutions to the resource allocation problems, which are based on the theoretical foundations. This talk provides the basic concepts/theories for addressing research advances that enable D2D communications in cellular networks, the state-of-the-art of research and development and the related information using the game-theoretic models.