Title: **Pushing the Capacity Envelope of Wireless Networks: Opportunities and Challenges**

Speaker: Prof. Tom Hou, IEEE Fellow
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URL: http://www.cnsr.ictas.vt.edu/THou.html

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Location: Lecture Room #N1, Research Bldg. No. 9, Kyoto University
Yoshida-honmachi, Sakyo-ku, Kyoto, 606-8501
Research Bldg. No. 9 is Building 63 at
http://www.kyoto-u.ac.jp/en/access/yoshida/main.html

Abstract: Over the past fifteen years, we have witnessed a phenomenal growth in wireless data communications. On the demand side, the use of wireless handheld devices and applications has become pervasive. On the technology side, various advanced communication technologies have been developed to improve network capacity. Some of these technologies include cognitive radio, massive MIMO, full duplex, mmWave, among others. Although it is well known that these technologies can improve point-to-point throughput performance, it remains unclear whether such performance gain can be retained in a complex network environment. A fundamental exploration of this question is important not only for gaining new theoretical understanding, but also is critical for the design of algorithms and network protocols in the field. In this talk, we explore the challenges in the modeling and optimization of these new physical layer technologies in a network environment with the goal of pushing the capacity envelop at the network level.

Speaker Biography: Tom Hou is the Bradley Distinguished Professor of Electrical and Computer Engineering at Virginia Tech, USA. His research interests are to develop innovative solutions to complex cross-layer optimization problems in wireless networks. He is particularly interested in exploring new limits of network performance by exploiting advances at the physical layer and other new enabling technologies.

Prof. Hou was named an IEEE Fellow for contributions to modeling and optimization of wireless networks. He has published two textbooks: Cognitive Radio Communications and Networks: Principles and Practices (Academic Press/Elsevier, 2009) and Applied Optimization Methods for Wireless Networks (Cambridge University Press, 2014). The first book has been selected as one of the Best Readings on Cognitive Radio by the IEEE Communications Society. Prof. Hou's research was recognized by five best paper awards from the IEEE and two paper awards from the ACM. He holds five U.S. patents.

Prof. Hou is a prominent leader in the research community. He was an Area Editor of IEEE Transaction on Wireless Communications (Wireless Networking area), and an Editor of IEEE Transactions on Mobile Computing, IEEE Journal on Selected Areas in Communications – Cognitive Radio Series, and IEEE Wireless Communications. Currently, he is an Editor of IEEE/ACM Transactions on Networking and ACM Transactions on Sensor Networks. He is the Steering Committee Chair of IEEE INFOCOM conference – the largest and top ranked conference in networking. He is a member of the Board of Governors as well as a Distinguished Lecturer of the IEEE Communications Society.