

# 学术报告

## ACADEMIC LECTURE



**题目: Oblivious Neighbor Discovery for Wireless Devices with Directional Antennas**

**时间: 2016年8月5日(周五) 上午10:00**

**地点: 信电楼215**

**报告人: Prof. Lin Chen, University of Paris-Sud 11, France**

**专家介绍:** Lin Chen received his B. Sc. degree in Radio Engineering in 2002 from Southeast University, Nanjing, China, his M. Sc. in Networking in 2005 from University of Paris 6, and his engineer and Ph. D. degree in Computer Science and Networking in 2005 and 2008 from Telecom ParisTech (ENST), Paris. He is now an associate professor in the Department of Computer Science at University of Paris-Sud, which he joined in September 2009. His current research activities include the modeling and design of distributed algorithms and protocols in emerging wireless networks and network security. He has published more than 40 journal papers (including ToN, JSAC, TMC, TSP, TWC, TCOM, TC, TPDS, TIFS) and more than 40 conference papers (including MobiHoc, Infocom, ICNP, ICDCS). He won the Best Paper Award at ICCCN 2007. He has served as TPC chair of Infocom Green and Sustainable Networking and Computing (GSNC) Workshop. He has served as TPC member of a number of major networking conferences (including ICC, WCNC, Globecom). He has served as guest editors of a number of venues including IEEE Wireless Communications, ACM/Springer Mobile Networks & Applications (MONET), IEEE Access and International Journal of Distributed Sensor Networks (Hindawi). He serves as Chair of the IEEE SIG on Green and Sustainable Networking and Computing with Cognition and Cooperation.

**报告内容:** Neighbor discovery, the process of discovering all neighbors in a device's communication range, is one of the bootstrapping networking primitives of paramount importance and is particularly challenging when devices have directional antennas instead of omni-directional ones. In this talk, I present our recent work on the following fundamental problem which we term as *oblivious neighbor discovery*: How can neighbor nodes with heterogeneous antenna configurations and without clock synchronization discover each other within a bounded delay in a fully decentralised manner without any prior coordination? I first present a theoretical framework on oblivious neighbor discovery and the performance bound we obtain for any neighbor discovery protocol achieving oblivious discovery. Guided by the theoretical results, I then present our design of an oblivious neighbor discovery protocol and demonstrate that it achieves guaranteed oblivious discovery with order-minimal worst-case discovery delay in the asynchronous and heterogeneous environment.

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