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**Application of Cellular Probe Data in Transportation Planning, Operations and Management**

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<th>Thursday – Oct. 14, 2010</th>
<th>Location: Donald Jacobs Center, Room G36 Northwestern University 2001 Sheridan Road Evanston, IL</th>
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<td>4:00 - 5:00 pm</td>
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**Abstract:** Traffic data collection is essential for transportation planning, operations and management. Traditional traffic data collection methods can only provide limited data contents with low update frequency. Furthermore, it requires high level of maintenance. To meet the growing demand for transportation planning, operations and management, it is important to provide both historical and real time traffic data with full coverage in terms of time and space. With the high ownership rate and usage of cell phones among trip makers, the correlation between cellular data and trip characteristics is becoming stronger and stronger. Thus, cellular probe will become an important traffic data collection method in the future. Furthermore, it is expected that cellular probe data would largely benefit transportation planning, operations and management.

A cellular probe system has significant advantages over other traffic data collection systems. It has low cost and is easy to install. It has large sample rate and full coverage over space and time. Accordingly, cellular probe data can be applied in various areas in transportation planning, operations and management:

- Continuous and large scale passenger flow data collection to enable urban planning and management agencies to develop corresponding policies and strategies;
- Real-time passenger flow data collection and forecast to enable transit agencies to adjust work plans and schedules according to congestion levels;
- Based on frequent congestion areas and OD flow forecast analysis, appropriately adjust passenger flow diversion strategies; and
- Full data support for real-time traffic operations and management.

As a case study, this work will introduce cellular probe data applications in Shanghai, China, including 2009 OD Survey, real-time passenger flow data collection and analysis for 2010 World Expo, and real-time traffic data collection for all major roads in the city.

**Bio:** Dr. Bin Ran is a Professor at the University of Wisconsin at Madison and is the co-author of two leading books on dynamic traffic networks. He has co-authored about 60 journal papers and more than 140 referenced conference papers. He holds 3 US patents and has a few patents pending in the US and China. Dr. Ran previously held positions at the Massachusetts Institute of Technology and University of California at Berkeley. Dr. Ran is the Founding President of North America China Overseas Transportation Association (NACOTA) from 1996 to 1998. Dr. Ran received his PhD from the University of Illinois at Chicago in 1993, his MS from the University of Tokyo in 1989, and his BS from Tsinghua University in 1986.