Welcome to WSNS 2010, the 6th IEEE International Workshop on Wireless and Sensor Networks Security held in conjunction with the 7th IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS 2010).

Wireless networks have experienced an explosive growth during the last few years. Nowadays, there is a large variety of networks spanning from the well-known cellular networks to non-infrastructure wireless networks such as mobile ad hoc networks and sensor networks. Security is a central concern for achieving secured communication in these networks. Interest has increased in this area. This includes attacks and countermeasures, authentication and access control, computer-aided tool for security, cross-layer design for security, cryptographic protocol, denial of service (DoS), key management, information hiding, intrusion detection and response, malicious behavior detection and analysis, privacy and anonymity, secure localization and synchronization, security and performance tradeoff, security policy and enforcement issues, security protocols analysis, design, and proof, secure routing/MAC, surveillance and monitoring, trust establishment and management, and so on. This one-day workshop aims to provide a forum for continued activity in such an area, to allow interaction of security researchers and developers, and to give attendees of MASS 2010 an opportunity to network with experts in wireless sensor networks security.

In response to the call for papers of this workshop, 19 papers from 11 different countries and regions were submitted. Each paper was reviewed by 3-5 experts including program committee members and external reviewers. The program committee made selection based on the received review reports and space and time limitation. As a result, 9 regular papers are accepted and will be presented at WSNS 2010.

The technical program for WSNS 2010 is the result of the hard work of many authors, reviewers, program committee members. We are grateful to them for their help and investing time and energy in the development of the very high quality technical program. We thankfully acknowledge the MASS 2010 Workshop Chairs, Dr. Cedric Westphal and Dr. Christine Pepin (DoCoMo Labs), and MASS 2010 Local Chairs, Dr. Kumar Viswanath (NTT Labs) and Dr. Ignacio Solis (PARC) for the help in organizing this workshop. We also appreciate the advices and supports from our WSNS 2010 Steering Committee members, Professor Dharma Agrawal (University of Cincinnati), Professor Sajal Das (University of Texas at Arlington & US National Science Foundation), Professor Yong Guan (Iowa State University), Professor Thomas La-Porta (Pennsylvania State University), and Professor Jie Wu (Temple University).

We hope you will enjoy and benefit from the presentations and discussions of WSNS 2010!

November, 2010

Falko Dressler, University of Erlangen, Germany

Zhen Jiang, West Chester University, USA

Wensheng Zhang, Iowa State University, USA
WSNS 2010

Workshop Organization

Workshop Chairs
Falko Dressler, University of Erlangen, Germany
Zhen Jiang, West Chester University, USA
Wensheng Zhang, Iowa State University, USA

Steering Committee
Dharma Agrawal, University of Cincinnati, USA
Sajal Das, University of Texas, Arlington, USA & US National Science Foundation
Yong Guan, Iowa State University, USA
Thomas La-Porta, Penn. State University, USA
Jie Wu, Temple University,

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M. Lu, Central South University, China
N. Stakhanova, University of New Brunswick, Canada
Y. Stamatiou, Computer Technology Institute, Greece
B. Tong, Microsoft, USA
X. Wang, Google, USA
Y. Xia, University of Florida, USA
S. Yang, Purdue University at Calumet, USA
# WSNS’10 Workshop Program

Monday, November 8th, 2010  
San Francisco, CA, USA

## Opening Session (8:50 – 9:05): Introduction to WSNS’10
- **Dr. Falko Dressler**  
  University of Erlangen-Nuremberg, DE
- **Dr. Zhen Jiang**  
  West Chester University, US
- **Dr. Wensheng Zhang**  
  Iowa State University, US

## Session 1 (9:05 – 10:00): Keynote Speech

**Wireless Physical Layer Security**  
**Dr. Peng Ning, North Carolina State University**

### Break (10:00 – 10:30)

## Session 2 (10:30 – 12:00): Secure Connection and Communication
**Chair: Dr. Shan Suthaharan (University of North Carolina at Greensboro, US)**

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<th>Title</th>
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<tr>
<td>1</td>
<td>Improving Anti-Jamming Capability and Increasing Jamming Impact with Mobility Control</td>
<td>Patrick D Tague (Carnegie Mellon University, USA)</td>
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<tr>
<td>2</td>
<td>Secure Connectivity Model In Wireless Sensor Networks (WSN) Using 1st Order Reed-Muller Codes</td>
<td>Pinaki Sarkar; Amrita Saha (Jadavpur University, India); Morshed Chowdhury (Deakin University, Australia)</td>
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<td>3</td>
<td>Perfectly Anonymous Data Aggregation in Wireless Sensor Networks</td>
<td>Levente Buttyan; Tamás Holczer (Budapest University of Technology and Economics, Hungary)</td>
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### Lunch Time (12:00 – 13:30)  
*Conference does offer lunch on that day.*

## Session 3 (13:30 – 15:00): Authentication, Chair: Dr. Morshed Chowdhury (Deakin University, AU)

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<td>Implementation and Evaluation of Distance-Based Message Authentication</td>
<td>Antony H M Chung; Utz Roedig (Lancaster University, United Kingdom)</td>
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<td>5</td>
<td>A Modular Security Architecture for Managing Security Associations in MANETs</td>
<td>Mazda Salmanian; Peter C Mason; Joanne Treurniet (Defence R&amp;D Canada, Canada); Jiangxin Hu; Li Pan (Communication Research Centre Canada, Canada); Ming Li (Defence R&amp;D Canada, Canada)</td>
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<td>6</td>
<td>Implicit Certificates Support in IEEE 1609 Security Services for Wireless Access in Vehicular Environment (WAVE)</td>
<td>Nader M. Rabadi (USA)</td>
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### Break (15:00 – 15:30)

## Session 4 (15:30 – 17:00): Key and Data Security  
**Chair: Dr. Patrick Tague (Carnegie Mellon University, US)**

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<td>7</td>
<td>On Application of Host Identity Protocol in Wireless Sensor Networks</td>
<td>Andrey Khurri; Dmitriy Kuptsov; Andrei Gurtov (Helsinki Institute for Information Technology, Finland)</td>
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<td>8</td>
<td>Sensor Data Boundary Estimation for Anomaly Detection in Wireless Sensor Networks</td>
<td>Shan Suthaharan (University of North Carolina at Greensboro, USA); Christopher Leckie; Masud Moshtaghi; Shaniya Karunasekera; Sutharshan Rajasegarar (University of Melbourne, Australia)</td>
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<td>9</td>
<td>Enhanced Location Based Key Pre-Distribution Scheme for Secure Communication in Wireless Sensor Network (WSN)</td>
<td>Amit Gaur; Smita Tosnival; Abhinav Prakash; Dharma P Agrawal (University of Cincinnati, USA)</td>
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