

# ICMU • 2005

13-15 April 2005 Osaka Japan

Proceedings of  
2<sup>nd</sup> International Conference on Mobile Computing  
and Ubiquitous Networking

April 13-15, 2005

Osaka University Convention Center, Osaka, Japan



Sponsored by

Information Processing Society of Japan

IPSJ SIG Mobile Computing and Ubiquitous Networking  
and IPSJ SG Broadcast Communication and Computing

Supported by

IPSJ SIG Intelligent Transport Systems

IPSJ SIG Ubiquitous Computing System

and the Telecommunications Advancement Foundation

## Time Table

### April 13 2005 (Wed)

13:00 – 13:15	Opening Session
13:15 – 14:00	Keynote Speech
14:00 – 14:15	Coffee Break
14:15 – 15:45	Session 1: Ad hoc Network Routing
15:45 – 16:00	Coffee Break
16:00 – 17:30	Session 2: Security

### April 14 2005 (Thu)

9:00 – 10:00	Keynote Speech
10:00 – 10:15	Coffee Break
10:15 – 11:45	Session 3: Ubiquitous Infrastructure
11:45 – 13:00	Lunch Break
13:00 – 14:45	Panel Discussion
14:45 – 15:00	Coffee Break
15:00 – 16:00	Session 4: Information Delivery
16:15	Bus Departure
17:30 – 19:30	Conference Banquet

### April 15 2005 (Fri)

9:00 – 10:30	Session 5: Location Dependent Processing
10:30 – 10:45	Coffee Break
10:45 – 12:15	Session 6: Handover Management
12:15 – 13:30	Lunch Break
13:30 – 14:30	Session 7: Quality of Service
14:30 – 14:45	Coffee Break
14:45 – 15:45	Session 8: Sensor Networks
15:45 – 16:00	Closing

## Program

### April 13 (Wednesday)

#### 13:00-13:15 **Opening Session**

General Chair *Yasuo Hirata* (KDDI R&D Laboratories, Japan)

#### 13:15-14:00 **Keynote Speech**

**Toward Future Innovation of Mobile Communication Systems**

— Current Requirements for Research —

*Prof. Teruo Higashino* (Osaka University, Japan)

#### 14:00-14:15 **Coffee Break**

#### 14:15-15:45 **Session 1: Ad hoc Network Routing**

Session Chair: *Takamichi Tateoka* (University of Electro-Communications, Japan)

- **A Link-Connectivity-Prediction-Based Location-Aided Routing Protocol for Hybrid Wired-Wireless Networks**

*Mintao Wu* (National University of Singapore, Singapore), *Winston K.G. Seah*, *Lawrence W.C. Wong* (Agency for Science Technology and Research, National University of Singapore, Singapore)

- **VANS: Visual Ad hoc Network Simulator**

*Masako Shinohara*, *Hideki Hayashi*, *Takahiro Hara*, *Akimitsu Kanzaki*, *Shojiro Nishio* (Osaka University, Japan)

- **Dynamic Topology Control to Reduce Interference in MANETs**

*Hwee Xian TAN* (National University of Singapore, Agency for Science Technology and Research, Singapore), *Winston K. G. SEAH* (Agency for Science Technology and Research, National University of Singapore, Singapore)

#### 15:45-16:00 **Coffee Break**

#### 16:00-17:30 **Session 2: Security**

Session Chair: *Miki Yamamoto* (Osaka University, Japan)

- **Less Power Security Techniques for Sensor Networks**

*Junaid Majeed* (Hamdard University, Pakistan)

- **Design and Implementation of Wireless Payment System using GVM and MobileC**

*Sung-Lim Yun*, *Eun-Bae Eom* (Dongguk University, Korea), *Jung-Sook Kim* (Sahmyook College, Korea), and *Se-Man Oh* (Dongguk University, Korea)

- **The Electronic ID and the Voting Admission using a Cell Phone**

*Tetsuji KOBAYASHI*, *Jaewook KIM* and *Norifumi MACHIDA* (Nippon Institute of Technology, Japan)

## April 14 (Thursday)

### 9:00-10:00 **Keynote Speech**

#### **Evolution of Mobile Communications toward Ubiquitous Network Society**

*Yasuo Hirata (KDDI R&D Laboratories, Japan)*

### 10:00-10:15 **Coffee Break**

### 10:15-11:45 **Session 3: Ubiquitous Infrastructure**

Session Chair: *Masugi Inoue* (National Institute of Information and Communications Technology, Japan)

- **Directional NAV Indicators for Smart Antenna Based Ad Hoc Networks**

*Masanori Sekido, Masanori Takata, Masaki Bandai, and Takashi Watanabe (Shizuoka University, Japan)*

- **Performance Analysis of IEEE 802.11 MAC Protocols over WLANs with Capture Effect**

*Xiaolong Li and Qing-An Zeng (University of Cincinnati, USA)*

- **Performance Analysis of a Directional MAC for Location Information Staleness in Ad Hoc Networks**

*Masanori Takata, Masaki Bandai and Takashi Watanabe (Shizuoka University, Japan)*

### 11:45-13:00 **Lunch Break**

### 13:00-14:45 **Panel Discussion**

- **Ubiquitous computing technologies in the world**

Session chair: *Masahiro Kuroda* (National Institute of Information and Communications Technology, Japan)

Panelists: *Prof. Hideyuki Nakashima* (Future University-Hakodate, Japan)

*Prof. Chai-Keong Toh* (Queen Mary University of London, UK)

*Prof. We-Duke Cho* (Ajou University, Korea)

### 14:45-15:00 **Coffee Break**

### 15:00-16:00 **Session 4: Information Delivery**

Session Chair: *Susumu Ishihara* (Shizuoka University, Japan)

- **A Broadcasting Scheme for Continuous Media Data with Restrictions in Data Division**

*Tomoki Yoshihisa (Osaka University, Japan), Masahiko Tsukamoto (Kobe University, Japan), and Shojiro Nishio (Osaka University, Japan)*

- **MODE for Mobile – An Efficient Overlay Multicast Protocol for Heterogeneous Users –**

*Thilmee M. Baduge, Hirozumi Yamaguchi, Teruo Higashino (Osaka University, Japan)*

**17:30-19:30 Banquet**

Executive Co-chair

Osamu Takahashi

The conference banquet will be held in Senri Hankyu Hotel. See "Banquet" section for details.

**April 15 (Friday)**

**9:00-10:30 Session 5: Location Dependent Processing**

Session Chair: *Hidetoshi Yokota* (KDDI R&D Laboratories, Japan)

- **A Personal Navigation System with a Schedule Planning Facility Based on Multi-Objective Criteria**

*Takayuki SHIRAISHI, Munenobu NAGATA (Nara Institute of Science and Technology, Japan), Naoki SHIBATA (Shiga University, Japan), Yoshihiro MURATA, Keiichi YASUMOTO, and Minoru ITO (Nara Institute of Science and Technology, Japan)*

- **Location Web: Proposal and implementation of location-based Web content search and creation using the mobile phone**

*Misato Sasaki (KDDI R&D Laboratories, Japan), Christian Noack (Brandenburg University of Technology, Germany), Hidetoshi Yokota, and Akira Idoue (KDDI R&D Laboratories, Japan)*

- **Evaluation of a replication method for data associated with location in mobile ad hoc networks**

*Gen Tsuchida (Shizuoka University, Japan), Tomoyuki Okino (Mitsubishi Electric Information Network Corporation, Japan), Tadanori Mizuno, and Susumu Ishihara (Shizuoka University, Japan)*

**10:30-10:45 Coffee Break**

**10:45-12:15 Session 6: Handover Management**

Session Chair: *Hiroshi Shigeno* (Keio University, Japan)

- **Traffic Modeling and Analysis of Wireless and Mobile Cellular Systems Using Smart Antennas**

*Wei Shen, Huazhou Liu, and Qing-An Zeng (University of Cincinnati, USA)*

- **Reliable Multicast Protocol with Packet Forwarding in Wireless Internet**

*Taku NOGUCHI (Ritsumeikan University, Japan), Toru YOSHIKAWA, and Miki YAMAMOTO (Osaka University, Japan)*

- **A Predictive Low Latency Handover Scheme for Mobile IP**

*N. Van den Wijngaert and C. Blondia (University of Antwerp, Belgium)*

**12:15-13:30 Lunch Break**

**13:30-14:30    Session 7: Quality of Service**

Session Chair: *Gen Kitagata* (Tohoku University, Japan)

- **A multi-hop MANET demonstrator tested on real-time applications**

*Giorgio Mulas, Alessandro La Piana, Fabio Cau, Pierluigi Iodice, Andrea Tamoni, and Simone Antonini (CEFRIEL, Italy)*

- **Software Agent (SA) to guarantee QoS for multi constrain applications in all-IP networks**

*Kazi Khaled Al-Zahid Kaniz Akter and Mitsuji Matsumoto (Waseda University, Japan)*

**14:30-14:45    Coffee Break**

**14:45-15:45    Session 8: Sensor Networks**

Session Chair: *Keisuke Suwa* (Musashi Institute of Technology, Japan)

- **UPnP-Based Sensor Network Management Architecture**

*Hyungjoo Song and Daeyoung Kim (Information and Communications University, Korea)*

- **Prolonging Network Lifetime via Intra-Cluster Routing in Wireless Sensor Networks**

*Trong Thua Huynh and Choong Seon Hong (Kyung Hee University, Korea)*

**15:45-16:00    Closing**

Executive Co-chair    Tadanori Mizuno

## Keynote Speech



**Toward Future Innovation of Mobile Communication Systems  
— Current Requirements for Research —**

**Professor Teruo Higashino**  
**Department of Information Networking**  
**Graduate School of Information Science and Technology**  
**Osaka University**

### **Speaker's Biography**

Teruo Higashino is a professor in the department of Information Networking, Graduate School of Information Science and Technology, Osaka University, Japan. He received the B.E., M.E., and Ph.D. degrees in Information and Computer Sciences from Osaka University, Osaka, Japan, in 1979, 1981 and 1984, respectively. He joined the faculty of Osaka University in 1984, and he has been a professor from 1999. His current research interests include mobile computing, distributed computing systems, communication protocols, and formal description techniques. He is a fellow of Information Processing Society of Japan (IP SJ), and serves on the chair of the IP SJ Special Interest Group on Distributed Processing System (SIG-DPS). He is a senior member of IEEE, and a member of IFIP TC6/WG6.1.

## Keynote Speech



### Evolution of Mobile Communications Toward Ubiquitous Network Society

**Yasuo Hirata, Dr. Eng.**  
**Chairman**  
**KDDI R&D Laboratories Inc.**

#### Speaker's Biography

Dr. Yasuo Hirata is currently Chairman of the Board of KDDI R&D Laboratories Inc. He received the B.S. M.S. and Ph. D. Degrees from Kyoto University in 1965, 1967 and 1977, respectively. In 1967, he joined KDD(currently KDDI), where he has been engaged in research and development on key digital technologies and completed system design for digital mobile satellite communication systems. His significant research is on the highly efficient forward error correction (FEC) technology.

He has also been active in the areas of standardization. He has been a vice chairperson of ITU-R Study Group 8 which deals with mobile communications and has taken a chairmanship of IWP8/7, IWP8/14 and Working Party 8D of SG8 over twelve years to support the advance of mobile satellite communications.

Since Jun, 1994 to October, 2000, he was Member of the Board, Executive Managing Director of KDD. From October, 2000 to June, 2003, he was Member of the Board, Senior Vice President of KDDI Corporation. He is now an IEEE fellow and an IEICE fellow.



## Banquet information

Conference banquet will be held in Jurin of [Senri Hankyu Hotel](#), one of the official hotels of ICMU2005, in the second day evening (4/14 17:30 to 19:30). The program committee has prepared a courtesy bus to take you to the hotel. It will leave the conference hall at 16:15. Please take care not to be late for the bus.



## Venue

The conference will be held at Osaka University Convention Center. This center is located at Suita Campus of Osaka University.

Osaka University, a National University founded in 1931, has traditionally attached high value to liberal ways of thinking, novelty, foresight and advanced academic research.

The University now boasts ten schools and faculties, 14 graduate schools, the

Liberal Arts and Sciences Organization, the Faculty of Language and Culture, the School of Health and Sport Sciences, and five research institutes, as well as libraries, two hospitals, and over 30 research facilities.

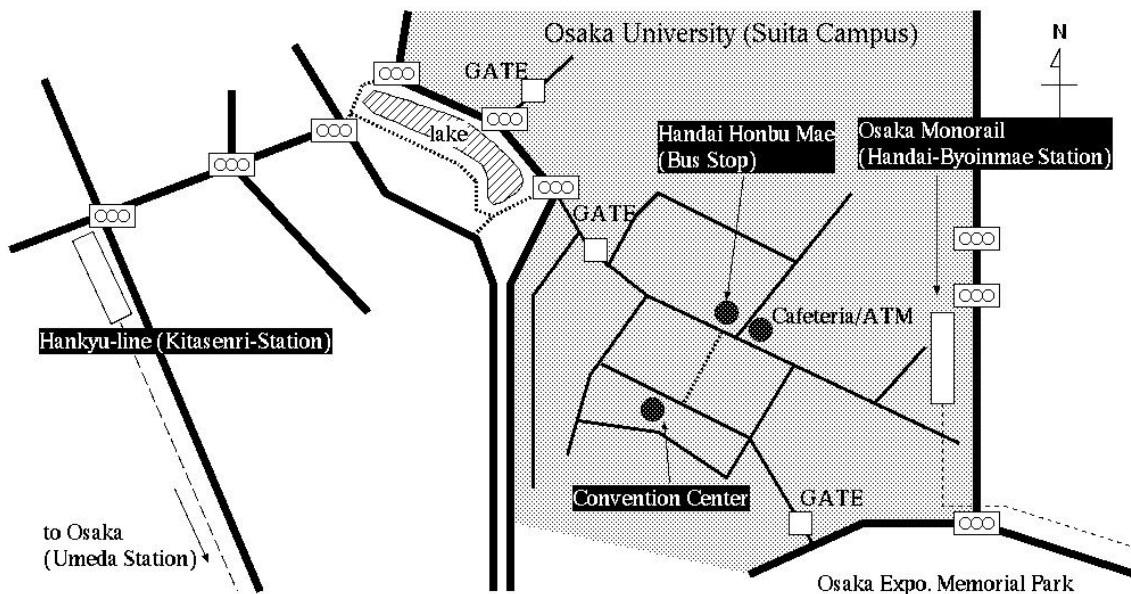


The University has an enrollment of about 20,000 students and a staff of some 4,500. The University has two campuses, Toyonaka and Suita, with a total land area of 1.5 million square meters (370 acres). The University has actively promoted international exchange, as demonstrated by the fact that about 1,000 overseas students are now enrolled in the University and some 1,400 international researchers stay at or visit the University annually. In addition, Osaka University has concluded Memorandum for student exchange with many universities and colleges around the world for both inter-university and inter-faculty exchanges, and the number of universities and colleges that have signed such agreements with Osaka University has increased remarkably over the past few years.

**Address :**

Osaka University  
1-1 Yamadaoka Suita, Osaka 565-0871 Japan

**Access from the Nearest Stations**



**Kita-Senri Station (Hankyu Senri Line)**

- ☆ 20 min. walk east from Kita-Senri Station on the Hankyu Senri Line.

**Handai Byoin Mae (Monorail)**

- ☆ 15 min. walk from Handai Byoin Mae Station on the Osaka Monorail.

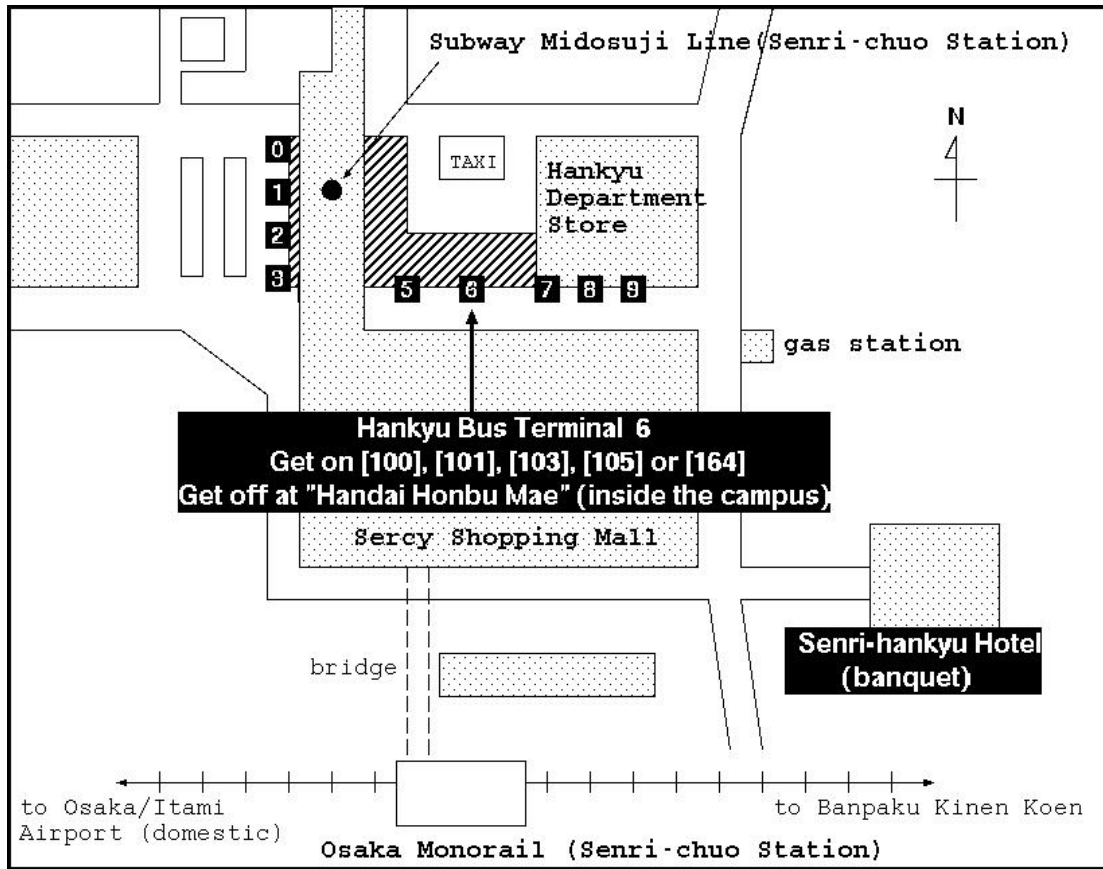
**Senri-Chuo Station (Subway)**

- ☆ Take the Osaka Monorail to Handai Byoin Mae.

or

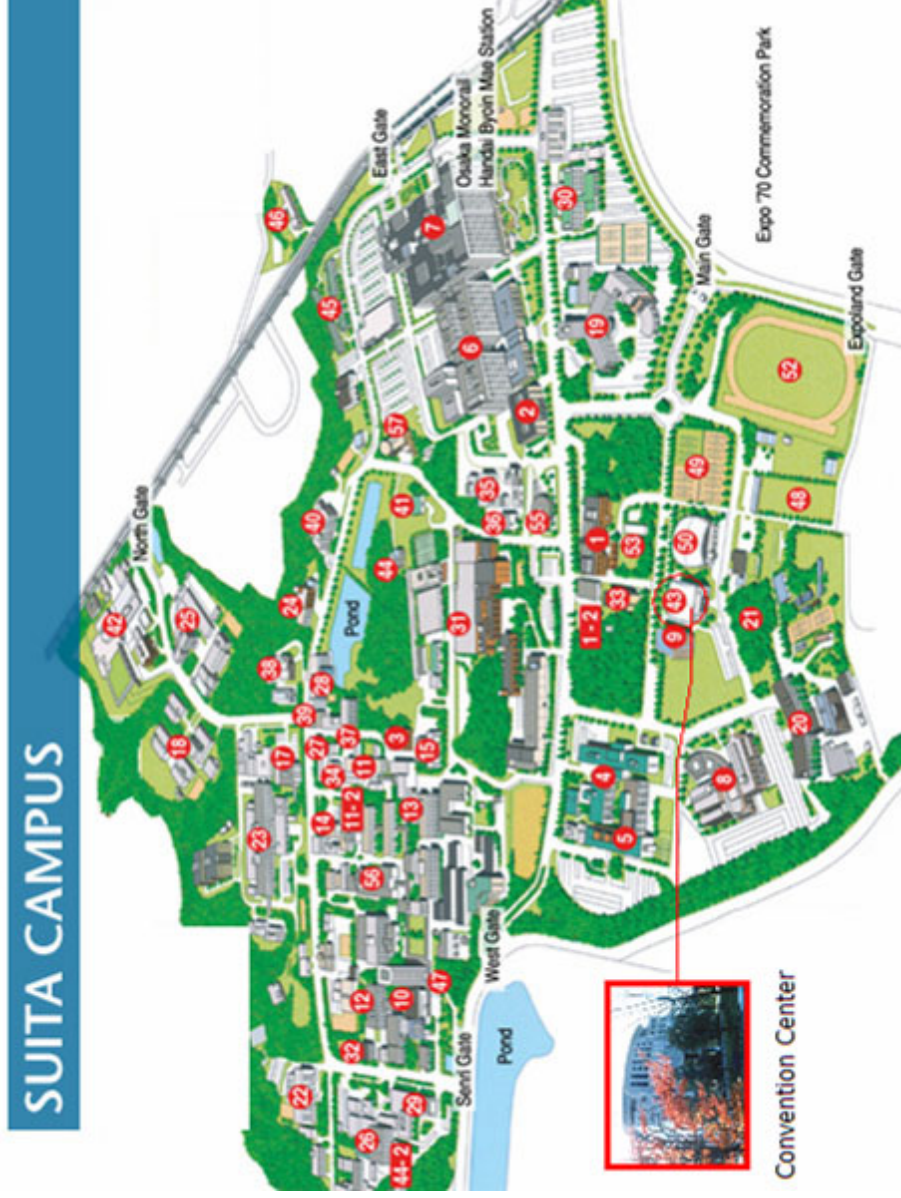
- ☆ Get on the bus bound for "Handai Honbu Mae" or "Ibaraki Mihogaoka" from Senri-Chuo Station. Get off at Handai Honbu Mae and walk about 5 minutes.

**Senri-Chuo Station Bus Terminal**





# Campus Map



Detailed campus map is available from <http://www.osaka-u.ac.jp/eng/campus/suita.html>.