Key Laboratory of Universal Wireless Communications, Ministry of Education

Key Subjects

Electromagnetic and Microwave
Communication and Information system
Circuit and Systems

Research team

39 research staffs:
- 2 academicians of CAE
- 19 professors
- 15 associate professors

Research Directions

Mobile communication system center
Wireless ubiquitous networks architecture center
Short range wireless communication center
Ubiquitous wireless environment center

❖ **Laboratory**

Director: Prof. Ping Zhang
Vice Director: Prof. Zheng Zhou
                  Prof. Xiaofeng Tao

❖ **Academic Committee**

Honorable Director：Academician Jongpan Zhou

Director：Academician Hequan Wu

Vice Director: Prof. Wenbo Wang

Members：Academician Yunjie Liu，Prof. Weiling Wu，Prof. Xiaohu You,
            Prof. Shaoqian Li， Prof. Yixian Yang, Prof. Ping Zhang，
            Prof. Yuanan Liu,   Prof. Haige Xiang，Prof. Hongke Zhang,
            Prof. Anguo Li,   Prof. Shihe Li，   Prof. Mofang Li,
            Prof. Jianhua Lu,   Prof. Ruming Chen, Prof. Bingli Jiao.

Key Laboratory of Universal Wireless Communications, Ministry of Education

The key project of 863 Program Demonstration Meeting

Vice Minister of Ministry of Science and Technology visited key laboratory of Universal Wireless Communications

IEEE fellow Branka Vucetic visited
Key Laboratory of Universal Wireless Communications

Dr. Xiaofeng Tao and UN vice-secretary in UN Internet Governance Forum.

Key Laboratory of Universal Wireless Communications, Ministry of Education

On December 12th, 2006, Professor Ping Zhang was honored the first class award of China Institute of Communications.

On September 17th, 2007, Professor Jigao Zhang was honored with the Ragnar Holm Scientific Achievement Award.

Four Basic Research Centers

- ❖ *Mobile communication center*

- ❖ *Wireless ubiquitous networks architecture center*

- ❖ *Short range wireless communication center*

- ❖ *Ubiquitous wireless environment center*

Mobile Communication Center

Director of research center:

Prof. Wenbo Wang

Major Professors:

Prof. Ping Zhang
Prof. Guangxin Yue
Prof. Hong Ji
Prof. Jinchun Tao

Research Areas:

● key theory and techniques of physical network
● Networking and Scheduling algorithms in MAC layer
● Radio resource management
● Operation and maintenance of wireless networks
● Research and development of novel system architecture
● Theory and research in broadband wireless IP networks

Mobile Communication Center

Major Achievements

● TDD-OFDM-MIMO demonstration platform

● The first 4G TDD experimental network

● The first 1Gbps TDD wireless communication demo. system

● The first commercial TD-SCDMA test set

● Participation in the domestic and international
   standardization for next generation communication system

Wireless Ubiquitous Networks Architecture Center

Director of research center:

Prof. Jianya Chen

Major Professors:

Academician Yunjie Liu,
Prof. Junde Song
Prof. Hui Tian

Research Areas:

- Future mobile service platform
- The environment perception and context-aware with the Always Best Experience
- The collaborative working approach for hetero-geneous network
- End-to-End reconfigurable system
- The controllable and manageable collaborative resource allocation
- The security issues of heterogeneous commun-ication systems

Wireless Ubiquitous Networks Architecture Center

The vision:
seamless access to personal and online content
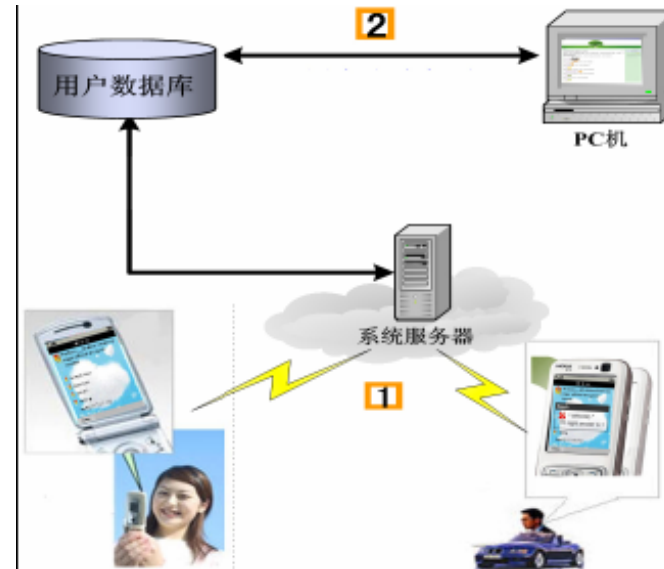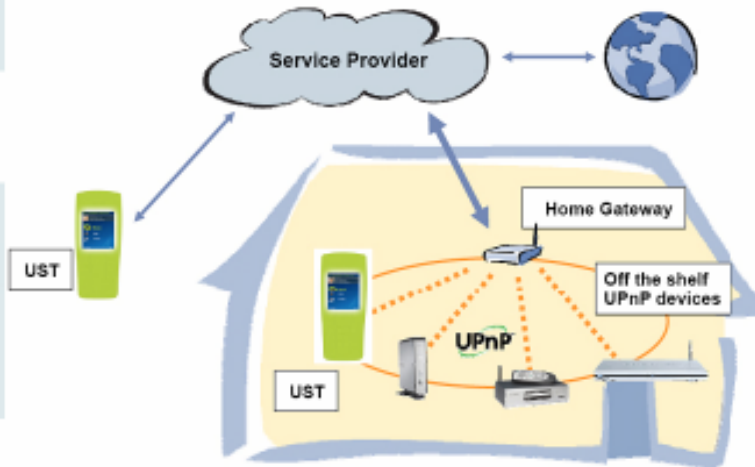
Major Achievements:

● Self-adaptable, reconfigurable and cognitive networks
● Self-learning network capability through the introduction of artificial
   intelligence theory
●Cognitive theory and self-configuration, self-management and
   self-optimization of wireless devices

Short Range Wireless Communication Center

Director of research center:

Prof. Zheng Zhou

Major Professors:

Prof. Yinghai Zhang
Prof. Mei Song
Prof. Danpu Liu

Research Areas:

● Wireless Electronic Health System research
● Intelligent home network and context aware
● Security and Privacy research in short wireless communication system
● Compatibility of multiple short range wireless communication techniques
● Connectivity of short range wireless communication techniques and cellular systems
● application of short range wireless communication techniques (WLAN 、 ZigBee 、 UWB)
● channel measurement of the 5.5GHz with bandwidth 100MHz

Short Range Wireless Communication Center

Major achievement:

● An adaptive frame structure supporting cooperative transportation
● Resource scheduling algorithms for mobile terminals
● MAC architecture supporting different frequencies and multiple model transportation
● Adaptive random access mechanism
● Multiple dimensional channel modeling and five dimension parameter extraction with supper high resolution

Ubiquitous Wireless Environment Center

Director of research center:

Prof. Yanan Niu

Major Professors:

**Prof. Jigao Zhang**
Prof. Shufang Li
Prof. Liangjun Xu

Research areas:

- Microstrip antenna
- Handset and Wireless Transceivers
- Electrical Radiation Modeling and Numerical Calculation
- Electromagnetic Environment and Interference monitoring with evaluation system
- Electrical Connect Phenomenon and Theory
- Electrical Connect Detection Method
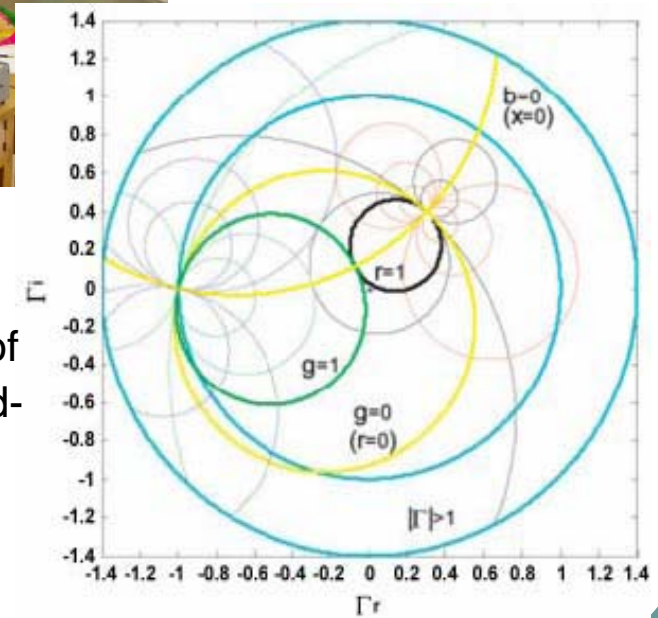- Atmosphere Environment and Effect

Ubiquitous Wireless Environment Center
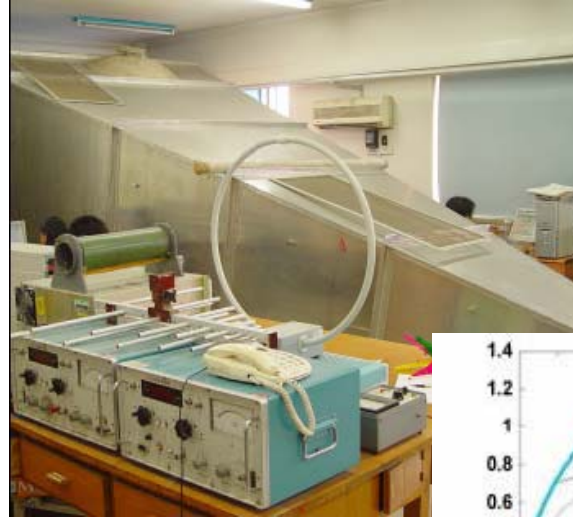
Major achievement:

●Omnipotent Smith Chart (OSC)

● Parameters to Affect Electrical Contact capable of modifying the Present International Trial Standard-ization

● Effects of Dusts for Electrical Contact

●Effective Model for Dust Shield

International Cooperation

Collaboration with more than 20 countries in the world,
and research funds accumulating up to twenty millions. (2006)

Sweden Government Officials visited laboratory

Signature ceremony of cooperation
agreement with ISST Fraunhofer, Germany

International Cooperation

Vice-President, Technical University Hamburge-Harburg Hermann Rohling

Royal Engineering Academician of U. K. Dr. Yonghua Song

Tohoku University of Japan Professor Adachi

General Engineer of Mobile Communication Department of Motorola North-Asia District Yilin Zhao

Industrialization

The first commercial TD-SCDMA test bed, bring in more than 28 million RMB

In April, 2006, the first 4G CALL in China

Industrialization

Technical achievement assessment on wideband wireless mobile TDD-OFDM-MIMO

Demonstration platform with strong digital signal processing ability

Patents Transfer Signature Ceremony

Achievements and Honors

- **National Science and Development, second prize (twice)**

- **Science and Development, Ministry of Information Industry, second prize (once)**

- **The Science and Technology Prize of China Institute of Communications ,first prize (twice)**

- **Science and Technology, Beijing, third prize (once)**

- **Beijing Economic and Technical Innovation (once)**

Achievements and Honors

- **NSFC projects (key-size projects)**   **31 items (2 items)**

- **973/863 projects (key-size projects)**   **1/16 items (2 items)**

- **Enterprise projects**   **67 items**

- **Paper (SCI/EI)**   **638 pieces (25/237)**

- **Patents (authorized/applied)**   **29/164 items**

- **Honors**   **5 items**

- **Publications**   **33 books**

- **35 proposals submitted to international standardization organizations, 10 proposals adopted by 3GPP, 3GPP2 and ITU.**