

# **Review of Research and Development on Antennas in Tohoku University**

Kunio Sawaya

## **Abstract**

Research on telecommunications in Tohoku University has a long history especially in regard to antenna engineering since the foundation of Department of Electrical Engineering in 1919. In this talk, research achievements related to telecommunications performed in Tohoku University including the invention and development of Yagi-Uda antenna and its applications to wireless communications will be first introduced. Development of self-complementary antenna and analysis of large loop antennas will be also described.

According to recent rapid expansion of applications of the electromagnetic wave, many application researches such as adaptive array antennas, MIMO systems, long range RFID systems are going on in the Laboratory of Electromagnetic Wave Engineering in Tohoku University. In order to perform these researches, fundamental studies such as numerical techniques for antenna design and analysis of propagation, measurement system for radiation characteristics of antennas are very important. Recent fundamental and application research activities in Tohoku University will be also presented.

## **Biography**

Kunio Sawaya received the B. E., M. E. and D. E. degrees from Tohoku University, Sendai, Japan, in 1971, 1973 and 1976, respectively. During 2002 -2003, he stayed the ElectroScience Laboratory, Ohio State University, Columbus, Ohio as a visiting professor. He is presently a professor in Department of Electrical and Communication Engineering and the Councilor of School of Engineering, Tohoku University. His areas of interests are antennas in plasma, antennas for mobile communications, theory of scattering and diffraction, antennas for plasma heating, and array antennas. He received the Young Scientists Award in 1981 and the Paper Awards in 1988 and 2006 from the Institute of Electronics, Information and Communication Engineers (IEICE) of Japan. He served as the Chairperson of the Technical Group of Antennas and Propagation of the IEICE from 2001 to 2003 and the Chairperson of the Organizing and Steering Committees of 2004 International Symposium on Antennas and Propagation (ISAP '04). He is also the President-elect of the Communications Society of IEICE. Dr. Sawaya is a fellow of IEICE, a senior member of the IEEE, and a member of the Institute of Image Information and Television Engineers of Japan.