2017.3.30

23rd URSI-C Chair
Nobuyoshi Kikuma

Activity Report of URSI-C Committee

- The 7th scientific workshop of the 23rd URSI-C in Japan -

1. Session title: "Full duplex transmission/reception technology in the same frequency"

2. Convener: Prof. Hidekazu Murata, Kyoto University

3. Date/time: 14:00 - 17:00, September 30th, 2016

4. Venue: Yudokoro Murobe (Nishimuro-gun, Wakayama)

5. Registration fee: Free

6. Listed attendees: 20 persons

7. Local arrangement: Prof. Shinichi Miyamoto (Wakayama University), Dr. Satoshi Tsukamoto (Advanced Telecommunications Research Institute International), Prof. Daisuke Umehara (Kyoto Institute of Technology)

8. Presentation:

- 14:00 - 14:10 Opening Remarks, Prof. Nobuyoshi Kikuma, Chair, Commission C of URSI-JNC (Nagoya Institute of Technology)
- 14:10 - 14:50 "Multi-hop full duplex wireless communications", Assistant Prof. Yuichi Miyaji (Toyohashi University of Technology)
- 14:50 - 15:30 "Simultaneous data and power transmission by wireless full duplex radio", Associate Prof. Shunsuke Saruwatari (Osaka University)
- 15:30 - 15:40 Coffee Break

•15:40 - 16:20	"Residual self-interference analysis of sneak interference cancellation systems for full duplex relaying", Dr. Hayato Fukuzono (NTT Access Network Service Systems laboratories)
•16:20 - 17:00	"Challenges in realization of non-orthogonal duplex for wireless communications", Prof. Makoto Taromaru (Fukuoka University)
•17:00	Closing

9. Reception: Attendees 17 persons at Banquet room, Murobe

10. The steering committee meeting took place from 8:30 to 9:30 on October 1st, 2016

11. Concluding Remarks

Recently, a technique of simultaneous transmission and reception in the same frequency band gained much attention. This technique itself emerged long time ago, however, is becoming a practical technique owing to advanced device technologies and tremendous bandwidth requirements.

The 7th workshop of 23rd URSI-C was held in Shirahama-cho, Nishimuro-gun, Wakayama Prefecture. The topic was "Full duplex transmission/reception technology in the same frequency". In this meeting, we invited four distinguished lectures on this interesting topic. First, Assistant Professor Yuichi Miyaji from Toyohashi University of Technology has presented his research entitled "Multi-hop full duplex wireless communications". Then, Associate Professor Shunsuke Saruwatari from Osaka University has presented his research entitled "Simultaneous data and power transmission by wireless full duplex radio". Next, Dr. Hayato Fukuzono from NTT Access Network Service Systems laboratories has presented his recent research entitled "Residual self-interference analysis of sneak interference cancellation systems for full duplex relaying". Finally, Professor Makoto Taromaru from Fukuoka University has presented his review entitled "Challenges in realization of non-orthogonal duplex for wireless communications".

Participants had fruitful discussion on the cutting-edge technologies of wireless communications and obtained valuable information.

- The 8th scientific workshop of the 23rd URSI-C in Japan -

1. Session title: "Microwave Imaging and Sensing Technology"

2. Convener: Mr. Takashi Yamagajo, Fujitsu Laboratories Limited

3. Date/time: 13:40 - 17:00, December 22nd, 2016

4. Venue: National Institute for Fusion Science (Toki city, Gifu pref.)

5. Registration fee: Free

6. Listed attendees: 19 persons

7. Local arrangement: Mr. Takashi Yamagajo (Fujitsu Laboratories Limited)

8. Presentation:

•13:40 - 14:30	Guided tour at NIFS (National Institute for Fusion Science)
•14:40 - 14:50	Opening Remarks, Prof. Nobuyoshi Kikuma, Chair, Commission C of URSI-JNC (Nagoya Institute of Technology)
•14:50 - 15:30	"Inversion Method without a Information on Incident Fields", Associate Prof. Toshifumi Moriyama（Nagasaki University）
•15:30 - 15:40	Coffee Break
•15:40 - 16:20	"High frequency GaN Device for the Radar and Sensing Technology", Dr. Masaki Hangai（Mitsubishi Electric Co.）
•16:20 - 17:00	"Nuclear Fusion Research and its application to Microwave Imaging", Prof. Yoshio Nagayama（NIFS）
•17:00	Closing

9. Reception: Attendees 12 persons at Hasshoen Yumotokan.
   After the reception, night session was held.
   "5G R &D Activities in Fujitsu", Mr. Atsushi Honda (Fujitsu Laboratories Ltd.)

10. The steering committee meeting took place from 8:15 to 9:30 on December 23rd, 2016 at Hasshoen Yumotokan.

11. Concluding Remarks

Recently, research on microwave imaging and sensing becomes more and more significant because it is applied in various fields such as medical care and intelligent transportation system. The 8th URSI-C workshop was held to study on this topic and to offer a chance for deep discussion. Before the workshop, a guided tour in the National Institute for Fusion Science (NIFS) was held and participants observed the control room, helium liquefier and vacuum chamber parts.

In the workshop, we invited three distinguished lecturers. First, assistant professor Toshifumi Moriyama from Nagasaki University has presented his research entitled "Inversion method without an information on incident fields". Then, Dr. Masaki Hangai from Mitsubishi Electric Corporation has presented the research of his project entitled "High frequency GaN device for the radar and sensing technology". Finally, Professor Yoshio Nagayama from NIFS has made the lecture entitled "Nuclear fusion research and its application to microwave imaging". He has reviewed present status and future prospect for the nuclear fusion research, and presented the plasma diagnostic technology using the microwave camera and its application to the breast cancer screening.

Researchers of the electromagnetic wave science and nuclear fusion science had fruitful discussion on the cutting-edge technologies and obtained valuable information.