

Activity Report of URSI-F

Reported by Y. Maekawa (Chair)

1. Commission meetings in the period of October 2011 – October 2012
(For more detail, please see <http://www2.nict.go.jp/pub/ursi-f/>)

- (1) No. 558 Meeting
Date: October 3-4, 2011 Place: Niigata University (Niigata)

This meeting was held under the co-sponsorship of Niigata University, IEEE GRS Japan Chapter and in technical cooperation with IEICE Technical Committee on SANE. This workshop was also corresponding to 2011 GRS Japan Chapter Technical Meeting entitled “2nd International Polarimetric SAR Workshop in Niigata 2011”. 18 papers relevant to the field of URSI-F were presented:

1. Polarization orientation angle estimation and applications
2. Microwave scattering from rough surface with layered media: An AIEM approach
3. Polarimetric SAR Interferometry for Information Product Generation
4. Forest canopy and foliage structure parameters from POLSAR data
5. Interoperability of radar and optical data for forest information assessment and outcomes for carbon monitoring
6. Estimating above ground biomass using PALSAR and LiDAR
7. Understanding of polarimetric SAR data from vegetated surfaces: backward model, forward model, and experiment
8. The progress research on circularly polarized synthetic aperture radar onboard microsatellite and UAV
9. SAR remote sensing in mountainous area
10. Remote sensing of ocean surface wind, current, wave, and internal wave using synthetic aperture rRadar
11. Optimazation of polarimetric contrast enhancement and its application
12. Potential assesement of SAR in compact and full polarimetry mode for snow/ice detection
13. An adaptive approach for polarimetric data to classify the land cover
14. Basics of scatterometer and its application
15. New airborne X-band SAR system (Pi-SAR2) and its application
16. Polarimetric calibration using evolutionary algorithm
17. Target detection using synthetic aperture radar
18. Polarimetric SAR target decompton based on unitary transformation

- (2) No. 559 Meeting
Date: November 16-18, 2011 Place: Nagoya Congress Center (Aichi)

This meeting was held under the co-sponsorship of IEICE Technical Committees on AP and CS, and IEEE AP-S Nagoya Chapter. Eight papers relevant to the field of URSI-F were presented:

1. High accurate method for estimation of the number of signals with QR decomposition in low SNR
2. Spatial correlation of receive antennas of indoor static mobile terminals
3. Multipath emulator over the air transmitting several signals with different Doppler frequencies from each probe antenna
4. Hybrid model for indoor radio propagation considering the effect of open-space between floors
5. Examination based on numerical technique of propagation loss properties in case human bodies exist between transmitter and receiver
6. Performance evaluation of intrusion detection method for various channel matrix models
7. Correlation between matrix elements and eigenvalue property in MIMO channel matrix
8. Method of MIMO channel sounding between parasitic antenna arrays

For more details, please see: <http://www.ieice.org/cs/ap/jpn/>

(3) No. 560 Meeting

Date: December 16, 2011 Place: National Institute of Information and Communications Technology (Tokyo)

Four papers were presented:

1. DSD estimation using VHF/L-band dual-frequency radar at Kototabang, Sumatra: accuracy evaluation and a case study during the passage of an SCC
2. The results of satellite signal measurements conducted for the past 25 years at Neyagawa city in Osaka prefecture
3. Asymptotic calculation of the intensity of millimeter wave propagation over an undulating surface using the diffraction integral with a high degree phase function
4. Pi-SAR2 observation of disaster area due to the 2011 off the Pacific coast of Tohoku Earthquake

(4) No. 561 Meeting

Date: January 18-20, 2012 Place: Kyushu Institute of Technology (Fukuoka)

This meeting was held under the co-sponsorship of IEICE Technical Committee on AP, and IEEE AP-S Fukuoka Chapter. 14 papers relevant to the field of URSI-F were presented in the special sessions organized for recent propagation issues:

1. 700MHz Band propagation loss model for roadside-to-vehicle communications in urban area
2. Validation of path loss model with low antenna height in residential area at different environment
3. Time-varying model of interference power between mobile terminals in residential area
4. Experimental study on spatio-temporal channel in indoor environments
5. FDTD analysis of propagation characteristics of wireless communications in crowded train cars
6. Data Analysis and Modeling Method for Indoor Human-Body Shadowing MIMO channels
7. Propagation loss characteristics in urban area using scale model method
8. Carrier frequency characteristic of time-spatial profile in outdoor LOS environments
9. Proposal on performance evaluation method of propagation loss prediction Model based on wavelet analysis
10. Ray-tracing propagation prediction system applying machine learning algorithms
11. Performance evaluation on interference temperature using measured outdoor, indoor and outdoor- indoor propagation data in heterogeneous networks
12. Proposal of performance improvement method in denoise and forward relay scheme using parasitic antennas
13. Improvement of dynamic range of 2.4GHz channel sounder using PN code sliding correlation
14. A study on the relationship between time scale of rain attenuation and velocity of rain area motion in Ka- and Ku-band satellite communications links

For more details, please see: <http://www.ieice.org/cs/ap/jpn/>

(5) No. 562 Meeting

Date: March 9, 2012 Place: NTT Yokosuka R&D Center (Kanagawa)

Four papers were presented:

1. Measurement of the transmission coefficient of a glass plate and inference of its refractive index at 60GHz band
2. A path loss model of interference between mobile terminals in residential area
3. Study on spatio-temporal channel model in indoor environments
4. Experimental analysis for angular spread characteristics of radio propagation channel through foliage

(6) No. 563 Meeting

Date: April 20, 2012 Place: Kanto Gakuin University (Kanagawa)

Three papers were presented:

1. Laboratory experiment of millimeter-wave multi-path propagation over an undulating surface (II)
2. Advantage of using scattering coefficients based on physical optics and curve reflection coefficients in ray tracing simulations for the analysis of propagation inside an arched tunnel

3. Estimation method of the outage intensity for multi-path fading condition

(7) No. 564 Meeting

Date: May 24-25, 2012 Place: ACROS Fukuoka (Fukuoka)

This meeting was held under the co-sponsorship of IEICE Technical Committee on AP, and IEEE AP-S Fukuoka Chapter. Two papers relevant to the field of URSI-F were presented:

1. Utilization of coordinated multi-point scheme for disaster recovery in MIMO multi-cellular system using multistream transmission
2. Statistical modeling of ultra-wideband channels between on-body antennas depending on room volume

For more details, please see: <http://www.ieice.org/cs/ap/jpn/>

(8) No. 565 Meeting

Date: June 15, 2012 Place: The University of Electro-Communications (Tokyo)

Four papers were presented:

1. Electromagnetic phenomena precursory to the 2011 Japan earthquake
2. Total recording of radio environment and its applications
3. Experiments of receiving TV white space and another frequency band by trying to apply Cisco clean air technology implementing cognitive radio technology for wireless LAN frequency bands: considering IEEE802.11af draft
4. Empirical time-spatial propagation model for outdoor LOS environments - Standardization activities for ITU Recommendation P.1816-1 -

(9) No. 566 Meeting

Date: July 25-27, 2012 Place: Hokkaido University (Hokkaido)

This meeting was held under the co-sponsorship of IEICE Technical Committees on AP and SAT, and IEEE AP-S Japan Chapter. 12 papers relevant to the field of URSI-F were presented in the special sessions organized for recent propagation issues such as:

1. Propagation characteristic estimations of wireless links in high-speed train cars based upon FDTD analysis
2. Comparison of propagation characteristics using ray tracing method and FDTD for wireless services inside tunnels
3. A study on path shadowing model for inter-vehicle communications in urban NLOS streets
4. Study on improvement of received level by reflector which is located near base station antenna
5. Evaluation of the service area in radio beacon system
6. Evaluation of ring-omni cells for next generation cellular system
7. MIMO propagation channel model for applying interlink correlation between multi-links
8. Human-body shadowing modeling for indoor quasi-static MIMO channels
9. Experiment on MIMO channel estimation between array antennas having parasitic antenna
10. Proposal of propagation model for indoor open-space between floors considering the effect of carrier frequency and cross-section size
11. Angle of arrival characteristics with low antenna height in residential area
12. Performance evaluation on interference reduction by terminal array antenna using an actual propagation data in heterogeneous networks

For more details, please see: <http://www.ieice.org/cs/ap/jpn/>

(10) No. 567 Meeting

Date: August 23-25, 2012 Place: Niigata University (Niigata)

This meeting was held under the co-sponsorship of Niigata University, IEEE GRS Japan Chapter and in technical cooperation with IEICE Technical Committee on SANE. This workshop was also corresponding to 2012 GRS Japan Chapter Technical Meeting entitled "3rd International Polarimetric SAR Workshop in Niigata 2012". 28 papers relevant to the field of URSI-F were presented such as:

1. Historical development of Radar Polarization technology towards Radar Polarimetry culminating in fully polarimetric POL-IN-SAR: Assessment of fully polarimetric POLSAR Remote Sensing & Geophysical Stress-change monitoring with implementation to agriculture, forestry & aqua-culture plus natural disaster assessment & monitoring within the Pacific Ring of Fire
2. Polarimetric geometric calibration and validation of the newly developed JAXA Pi-SAR-L2 and the Interferometric and polarimetric performances
3. Calibration of polarimetric Radarsat2 using high precision transponder measurements
4. Polarimetric SAR Interferometry Activities at DLR
5. Polarimetric and polarimetric interferometric research at JPL
6. A polarimetric segmentation approach for soil moisture active/passive (SMAP) mission: Algorithm description and results
7. A Polarimetric segmentation approach for soil moisture active/passive (SMAP) mission: Application to time series algorithm
8. Polarimetric surface scattering from layered media
9. Polarimetric analysis of coastal environments based on four-component scattering decomposition
10. SAR polarimetry applications for terrestrial and lunar surfaces
11. Problems and challenges to study lunar surface using mini-SAR data of Chandrayaan-1
12. Classification of Multifrequency and multipolarization SAR data for various land features
13. Polarimetric SAR remote sensing of earthquake/tsunami disaster
14. Generalized model-based scattering decomposition based on incoherent scattering models
15. Polarimetric classification based on underlying scatterer shape and orientation distributions
16. compact POLSAR and PolInSAR: Good or bad?
17. On the use of fully polarimetric ALOS-PALSAR and Radarsat-2 datasets for monitoring the wetland dynamics and for detecting archaeological sites
18. Speckle noise characterization and filtering in PolSAR and PolInSAR data
19. Near range polarimetric SAR
20. Adaptive signal processing based on complex-valued neural networks in radar imaging
21. Asymmetric decomposition method for polarimetric SAR data using a modified four-component scattering model
22. Reconstruction of a 3D complex target using step-frequency radar
23. Development of synthetic aperture radar onboard unmanned aerial vehicle
24. New NICT airborne X-band SAR system, Pi-SAR2: current status and future plan
25. Ground truth of PALSAR data using airborne and terrestrial LIDAR data
26. Multi-temporal PALSAR data to detect conversion of peatland forests to oilpalm plantation in Sarawak, Malaysia
27. On complete three-component decomposition of POLSAR coherency matrix data
28. Full-pol-SAR decomposition scheme over wet snow areas

(11) No. 568 Meeting

Date: September 19, 2012 Place: Kyushu Institute of Technology (Fukuoka)

Three papers were presented:

1. Scale model method for mobile propagation in urban area and residential area
2. A study for time-spatial propagation characteristics in case of the low antenna height base station
3. A study on long-term statistics of fade slope and duration time distribution of rain attenuation in satellite communications links

2. Others

IGARSS 2012 was held in Munich, Germany. Date: July 22-27, 2012

International Symposium on Antennas and propagation (ISAP) 2012 will be held in Nagoya. Date: Oct.29-Nov.2 2012.

URSI-F Triennial Open Symposium will be held in Ottawa, Canada. Date: Apr.30-May 3, 2013.