Conference Topics

A. Disaster Monitoring (Special Session)

- A.1 Contribution of SAR remote sensing on the Great East Japan Earthquake
- A.2 ALOS-2 projects for prediction, mitigation and restoration
- A.3 SAR applications for various disasters
- A.4 Present and future SAR systems and missions in Asia-Pacific region

B. SAR Applications

- B.1 Land Use and Land Cover
- B.2 Soil and Vegetation Applications
- B.3 Atmosphere and Ocean Observation
- B.4 Snow and Ice
- B.5 Coastal and wetlands
- B.6 Others

C. Advances in Analysis Techniques

- C.1 Electromagnetic Modeling
- C.2 InSAR and High Resolution SAR
- C.3 POL and POLInSAR
- C.4 Bistatic SAR
- C.5 Others

D. SAR Signal Processing

- D.1 High Resolution SAR Processing
- D.2 SAR/GMTI/STAP and Change Detection
- D.3 Image Filtering, Correction and Enhancement
- D.4 SAR/ISAR Signal Processing
- D.5 Others

E. SAR Systems and Sensors

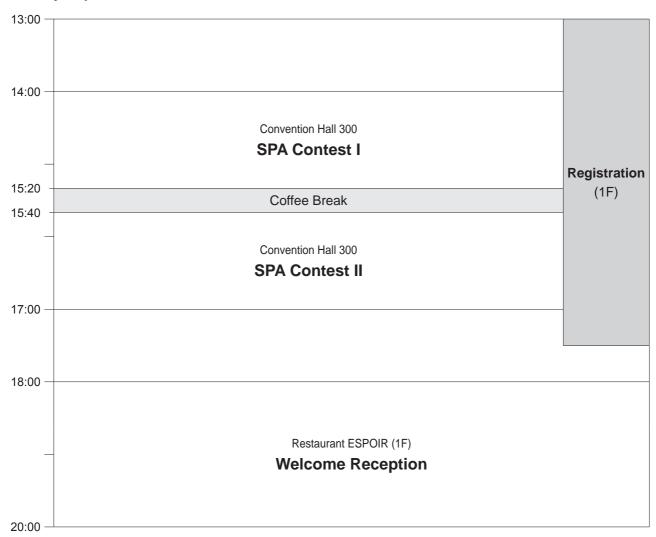
- E.1 Spaceborne and airborne SAR Systems and Missions
- E.2 Advanced and Innovative SAR Concepts and Modes
- E.3 Ground Based Systems
- E.4 Calibration
- E.5 Others

F. Radar Technology

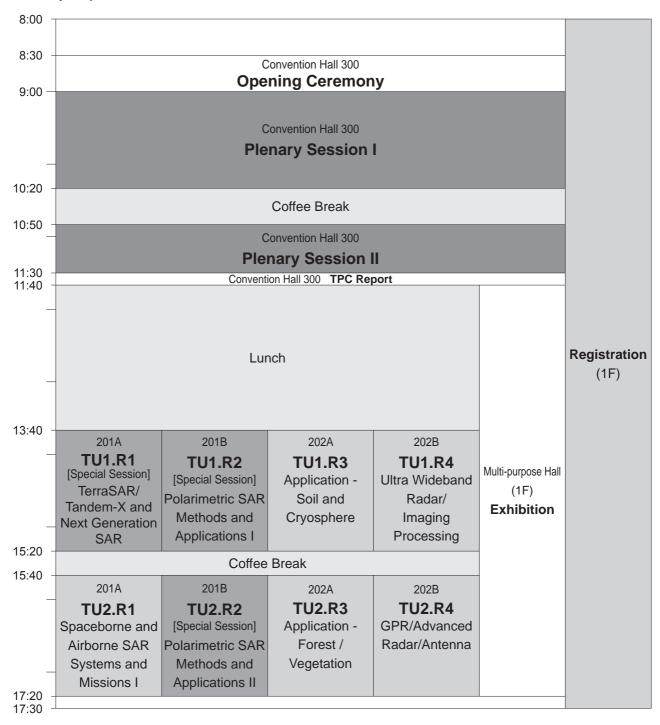
- F.1 Radar Components and Subsystems
- F.2 Antenna Technology and Adaptive Arrays
- F.3 UWB, GPR, Bio-Medical Imaging Radar Systems
- F.4 Automotive Radar
- F.5 Others

All aspects of SAR/Radar technologies have been solicited.

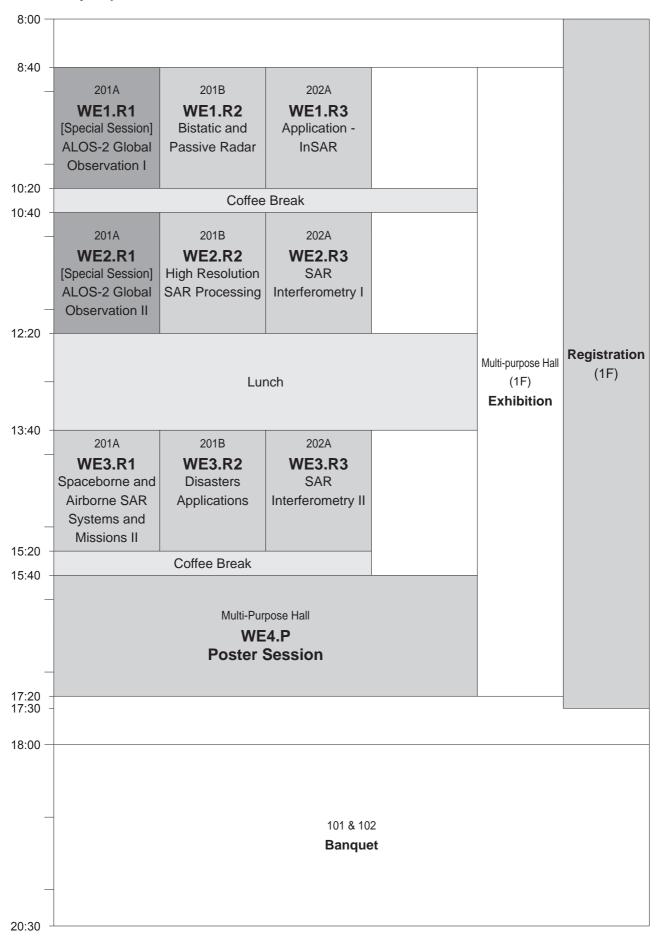
Monday Sept. 23, 2013



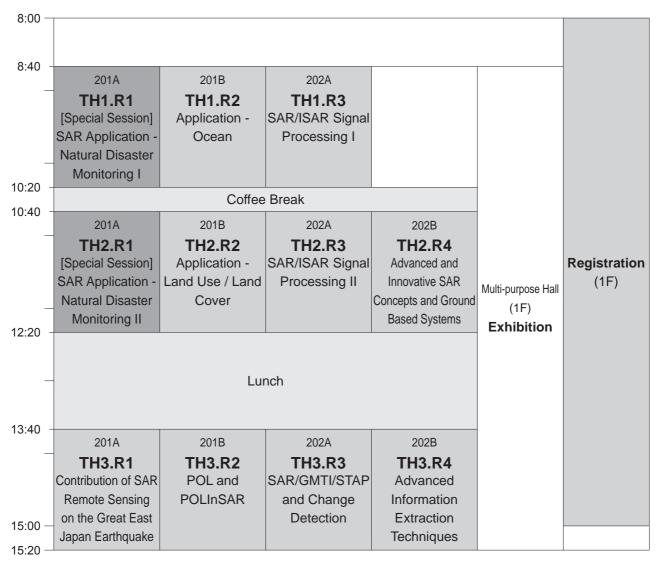
Tuesday Sept. 24, 2013



Wednesday Sept. 25, 2013



Thursday Sept. 26, 2013

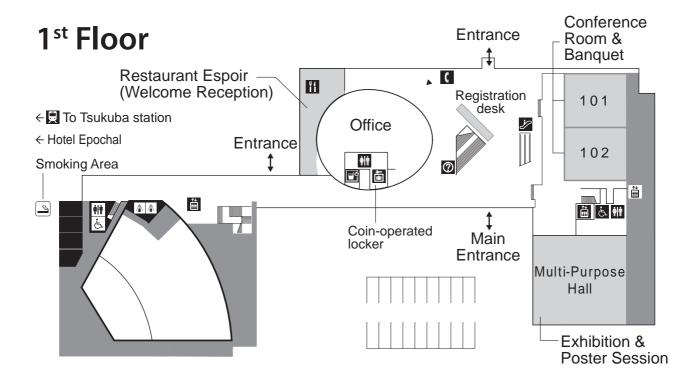


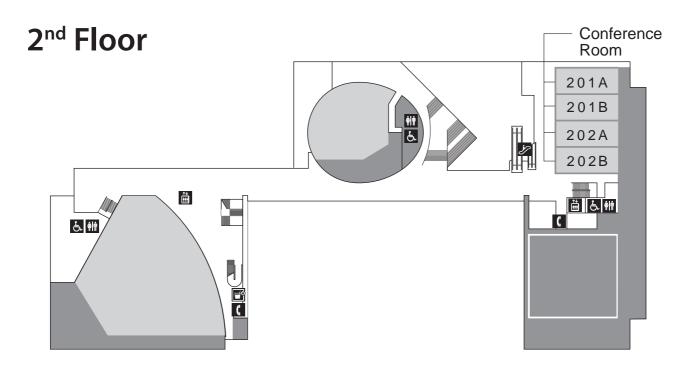
Friday Sept. 27, 2013



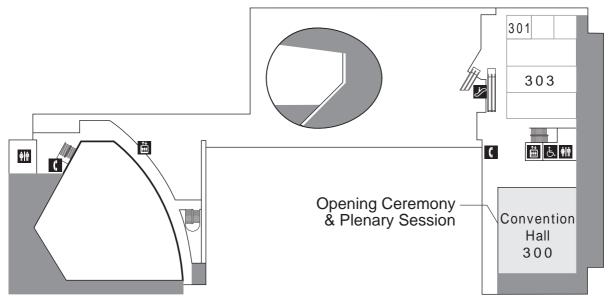
Floor Guide & Wi-Fi Internet

Tsukuba International Congress Center (Epochal Tsukuba)





3rd Floor



Wi-Fi Internet

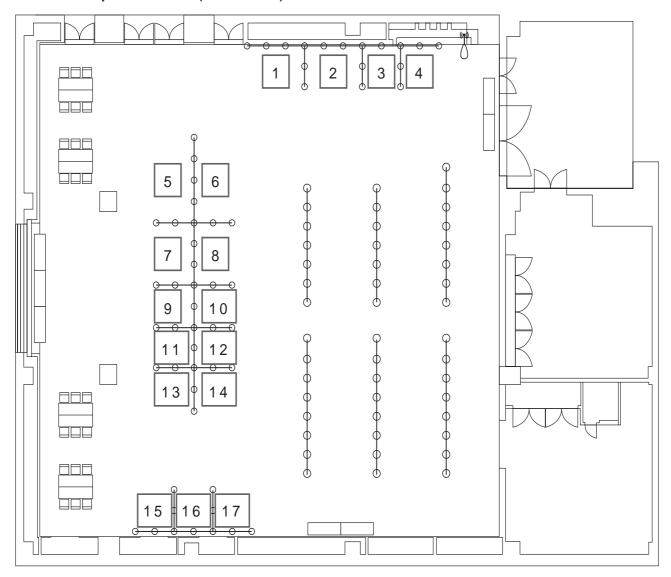
A public wireless internet is available in the Congress Center.

Complimentary wireless internet for the participants and the exhibiters is also available at the Multi-Purpose Hall. Please enter the following information to login:

SSID: APSAR2013 Password: access2013

Directory of Exhibitors

Multi-Purpose Hall (1st Floor)



Directory of Exhibitors

Booth #	Company name
1	Exelis Visual Information Solutions
2	Earth Observation Research Center, Japan Aerospace Exploration Agency (EORC, JAXA)
3	National Institute of Information and Communications Technology (NICT)
4	The University of Electro-Communications Inaba Laboratory
5	PASCO CORPORATION Astrium
6	MetaSensing SSBV Aerospace & Technology Group
7	NEC Corporation
8	Mitsubishi Electric Corporation
9	GAMMA Remote Sensing and Consulting AG
10	Mitsubishi Space Software Co., Ltd.
11	Japan Space Imaging Corporation
12	Remote Sensing Technology Center of Japan (RESTEC)
13	THE NIPPON SIGNAL CO.,LTD
14	ANRITSU CORPORATION
15	Rohde & Schwarz Japan
16	RFtestLab Co., Ltd.
17	Device Co., Ltd.

Presentation Instruction

GUIDELINE FOR ORAL PRESENTATIONS

- The official language of APSAR 2013 is English.
- Each oral presentation is allocated a 20 minutes time slot
 The 20 minutes includes the presentation, questions, discussions, and any setup time you use.
- Presenting authors should arrive to their session room 15-20 minutes before the session begins to meet with the session chair(s), who may be near the stage/lectern.
- Presenting authors should upload their slides to the APSAR 2013 laptop in their presentation room during the break before the session. There will be no central upload center. For speed and efficiency, we prefer to use the conference-provided computer for displaying their presentation visual aids. However, presentations from personal laptops with VGA connector are also allowed.
- Each session room will be equipped with a personal computer, LCD projector, a microphone, and a pointing device. The software installed on the provided computer includes Windows7, Microsoft Office 2010 or later, and Adobe Reader. Use of standard True Type font is suggested for Power Point presentations. In the case Power Point contains videos, please ensure that both files (Power Point and Video) are in the same folder.
- Presentation rehearsal room/area for checking the slides will be prepared in the conference hall.
- All papers must be presented at the conference in order to be included in the published proceedings appearing in IEEE Xplore.

GUIDELINE FOR POSTER PRESENTATIONS

- The official language of APSAR 2013 is English.
- The space available for each poster is 210cm (height)×90cm (width).
- Each poster will be attached to the face of a board. Push pins will be provided.
- Information about the location of the poster will be provided at the entrance of the poster area.
- Important points should be highlighted and arranged in a clear sequence. Graphical elements take on increased significance in the poster format and should be utilized accordingly. Do not simply reproduce your paper in large type. Poster sheets are usually arranged to be viewed from left to right and from top to bottom for an attractive and logical flow of information. If more than one page or sheet is used, it is recommended that these be numbered in the order in which the authors wish them to be viewed. Colored tape used to connect the units can be a helpful guide for the reader.
- Authors should set up their posters at least one hour before the start of the session, and must be present at their posters for the 90 minutes of the session.
- All papers must be presented at the conference in order to be included in the published proceedings appearing in IEEE Xplore.

Opening Ceremony and Plenary Session Schedule

Opening Ceremony

8:30-9:00

Convention Hall 300

Welcoming Address

Akira Hirose, General Chair of APSAR2013

Motoyuki Sato, Vice-chair, The Technical Committee on Electromagnetic Theory, IEICE Electronics Society Hiroshi Kimura, Chair of IEEE Geoscience and Remote Sensing Society (GRSS) Japan Chapter

Congraturatory Address

Shizuo Yamamoto, Exclusive Director, Japan Aerospace Exploration Agency (JAXA)

Fumihiko Tomita, Vice President, National Institute of Information and Communication Technology (NICT)

Plenary session I

9:00-10:20

Convention Hall 300

9:00-9:20

Dr. Masanobu Shimada, JAXA, Japan

"New Earth Observation Scenario using the ALOS-2 with the L-band high-resolution and full-polarimetric SAR"

9:20-9:40

Dr. Wen Hong, MITL-IECAS, P.R. China

"Research Progresss on Multidimensional Space Joint-observation SAR"

9:40-10:00

Dr. Young Kil Kwag, Korea Aerospace University, Korea

"Spaceborne Synthetic Aperture Radar in Korea"

10:00-10:20

Dr. Manfred Zink, DLR, Germany

"TanDEM-X: Operational DEM Generation and Pre-Cursor for Future SAR Missions"

Plenary session II

10:50-11:30

Convention Hall 300

10:50-11:10

Mr. Robertus Heru Triharjanto, LAPAN, Indonesia

"System Design of LAPAN-CHIBA Microsatellite"

11:10-11:30

Dr. Wolfgang-Martin Boerner, UIC, USA

"The challenge for the still unresolved development of Multi-band Equatorially Orbiting POLSAR satellite sensors - an integral task for the major space-sar technology centers"

Tuesday (Sept. 24)

13:40-15:20 Room 1 (201A)

TU1.R1: [Special Session] TerraSAR/Tandem-X and Next Generation SAR

Chair: Konstantinos Papathanassiou (German

Aerospace Center)

TU1.R1.1 Pol-InSAR Forest Applications by
13:40 Means of TanDEM-X: Results and
Experiments

Konstantinos Papathanassiou, Florian Kugler, Astor Torano Caicoya, Matteo Padrini, Irena Hajnsek ¹German Aerospace Centre (DLR), Germany, ²Institute of Radio Frequency Technology and Radar Systems (DLR-HR), Germany

TU1.R1.2 TanDEM-X Acquisition Plan and DEM
14:00 Performance in the Third Year of
Operation

M. Bachmann, B. Bräutigam, D. Schulze, G. Krieger, M. Zink German Aerospace Center (DLR), Germany

TU1.R1.3 TerraSAR-X Staring Spotlight Mode 14:20 Optimization

> Thomas Kraus, Benjamin Bräutigam, Christo Grigorov, Josef Mittermayer, Steffen Wollstadt Microwaves and Radar Institute, German Aerospace Center (DLR).

Germany

TU1.R1.4 The Future of X-Band SAR:
14:40 TerraSAR-X Next Generation and
WorldSAR Constellation

Steffen Gantert¹, Andreas Kern¹, Ralf Düring¹, Jürgen Janoth¹, Lars Petersen¹, Jörg Herrmann² ¹Infoterra GmbH, Astrium Geo-Information Services, Germany, ²Astrium GmbH, Germany

TU1.R1.5 Astrium Technology Development for Next Generation SAR

Jung-hyo Kim, Christoph Heer, Christoph Schaefer Microwave Instruments, Astrium GmbH, Germany

13:40-15:20 Room 2 (201B)

TU1.R2: [Special Session] Polarimetric SAR Methods and Applications I

Co-Chairs: Ridha Touzi (Canada Centre for

Remote Sensing),

W.-M. Boerner (University of Illinois at

Chicago)

TU1.R2.1 Theoretical Study of Backscatter 13:40 from Rice Paddy Using Discrete Scatterer Model

M. Arii¹, H. Kitta¹, T. Watanabe²,

H. Yamada²

¹Mitsubishi Space Software Co., Ltd., Japan, ²Graduate School of Science and Engineering, Niigata University, Japan

TU1.R2.2 Improved Snow Wetness Estimation 14:00 from Fully Polarimetric SAR Image

M.Surendar¹, G. Singh²,

A. Bhattacharya¹, G.Venkataraman¹,

P. A. Bharathi1

¹Indian Institute of Technology Bombay, India, ²Niigata University, Japan

TU1.R2.3 Generalized Hybrid Model-Based/ 14:20 Eigenvalue Decomposition

Gulab Singh, Yoshio Yamaguchi,

Sang-Eun Park

Graduate School of Science and Technology, Niigata University, Japan

TU1.R2.4 Development of Synthetic Aperture
14:40 Radar onboard Unmanned Aerial
Vehicle

Josaphat Tetuko Sri Sumantyo¹,

Koo Voon Chet²

¹Center for Environmental Remote Sensing, Chiba University, Japan, ²Faculty of Engineering & Technology, Multimedia University, Malaysia

TU1.R2.5 15:00

Implementation of High Resolution Polsar & Polinsar Imagery for Geo/bioenvironmental Monitoring of Natural Hazard-prone and Man-induced Disaster Regions across Indonesia

Wolfgang-M. Boerner¹,

Josaphat Tetuko Sri Sumantyo²,
Arifin Nugroho³, Katsumi Hattori⁴

¹UIC-ECE/CSN-Lab, USA, ²CEReS/
MRSL, Chiba University, Japan, ³SatSyst. Consultant, GS-EES, Telkom
Institute of Technology, Indonesia,

⁴Earthquake Res. Ctr, Chiba-University,
Japan

13:40-15:20 Room 3 (202A)

TU1.R3: Application - Soil and Cryosphere

Chair: Hiroyuki Wakabayashi (Nihon University)

TU1.R3.1 13:40

Soil Moisture Retrieval from Singlepolarized Measurements of Wellcalibrated Radars for Bare Soil **Surfaces**

Yisok Oh, Soon-Koo Kweon,

Ji-Hwan Hwang

Department of Electronic Information and Communication Engineering, Hongik University, Korea

TU1.R3.2 14:00

Soil Moisture and Biomass Retrieval using ALOS/PALSAR Data

Christian N. Koyama, Motoyuki Sato CNEAS, Tohoku University, Japan

TU1.R3.3 14:20

Polarimetric L-band ALOS for **Peatland Subsurface Water** Monitoring

R. Touzi¹, K. Omari¹, G. Gosselin¹, B. Sleep²

¹Canada Centre for Remote Sensing, Natural Resources Canada, Canada, ²Alberta Environment and Sustainable Resource Development, Canada

TU1.R3.4 14:40

A Study on Sea Ice Monitoring with SAR Data at Lake Saroma

Hiroyuki Wakabayashi¹, Yuta Mori¹, Kazuki Nakamura¹, Kohei Osa², ChanSu Yang³

¹College of Engineering, Nihon University, Japan, ²Global Center, Weathernews Inc., Japan, ³Korean Institute of Ocean Science and Technology, Korea

TU1.R3.5 15:00

Glacier Surge in West Kunlun Shan, **NW Tibet Detected by Synthetic Aperture Radar**

Takatoshi Yasuda¹, Masato Furuya² ¹Graduate School of Science, Hokkaido University, Japan, ²Department of Natural History Sciences, Hokkaido University, Japan

13:40-15:20 Room 4 (202B)

TU1.R4: Ultra Wideband Radar/Imaging Processing Chair: Toshio Wakayama (Mitsubishi Electric

Corporation)

TU1.R4.1 13:40

Long Range Detection of UWB Radar Using Interpulse Cyclic Phase Code

Masato Watanabe, Manabu Akita,

Takayuki Inaba

Department of Mechanical

Engineering and Intelligent Systems. Graduate School of Informatics and Engineering, The University of Electro-

Communications, Japan

TU1.R4.2 14:00

Accurate Permittivity Estimation Method for 3-dimensional Dielectric Object with Iterative Correction of Waveform Deformation

Ryunosuke Souma¹, Shouhei Kidera²,

Tetsuo Kirimoto²

¹Kyosan Electric Manufacturing Co., Ltd, Japan, ²Graduate School of Informatics and Engineering, University of Electro-

Communications, Japan

TU1.R4.3 14:20

Extended Imaging Method Using Range-Points-Based Ellipse **Extrapolation with Double-Scattered**

Waves for UWB Radar

Ayumi Yamaryo, Shouhei Kidera, Tetsuo Kirimoto

Graduate School of Informatics and Engineering, University of Electro-

Communications, Japan

TU1.R4.4 14:40

A Novel Approach of High Spatial-**Resolution Microwave Staring Imaging**

Xuezhi He, Bo Liu, Shougang Chai,

Dongjin Wang

Department of Electronic Engineering and Information Science, University of Science and Technology of China,

China

15:40-17:20 Room 1 (201A)

TU2.R1: Spaceborne and Airborne SAR Systems and Missions I

Chair: Makoto Satake (NICT)

TU2.R1.1 **Polarimetric Calibration of Pi-SAR2**

Makoto Satake, Tatsuharu Kobayashi, 15:40 Jyunpei Uemoto, Toshihiko Umehara, Shoichiro Kojima, Takeshi Matsuoka, Akitsugu Nadai, Seiho Uratsuka Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology

(NICT), Japan

Newly Developed X-band SAR TU2.R1.2 16:00 **System onboard Japanese Small**

Satellite "ASNARO-2"

Y. Yokota, Y.Okada, K. Iribe, M. Tsuji,

A. Ando, Y. Kunii

Mitsubishi Electric Corporation.

Kamakura Works, Japan

TU2.R1.3 NovaSAR-S: A Low Cost Approach to 16:20

SAR Applications

Rachel Bird¹, Philip Whittaker¹, Ben Stern¹, Nil Angli¹, Martin Cohen²,

Raffaella Guida³

¹Surrey Satellite Technology Ltd, UK, ²EADS Astrium, UK, ³Surrey Space Centre, University of Surrey, UK

TU2.R1.4 **Synthetic Aperture Radar Compatible** 16:40 with 100kg Class Piggy-Back Satellite

Hirobumi Saito¹, Atsushi Tomiki¹, Prilando Rizki Akbar¹, Takashi Ohtani², Kunitoshi Nishijo², Jiro Hirokawa³,

Makoto Ando³

¹Japan Aerospace Exploration Agency, Institute of Space and Astronautical Science, Japan, ²Aerospace Research & Development Directorate, JAXA, Japan, ³Tokyo Institute of Technology, Japan

15:40-17:20 Room 2 (201B)

TU2.R2: [Special Session] Polarimetric SAR Methods and Applications II

Co-Chairs: Ridha Touzi (Canada Centre for

Remote Sensing),

W.-M. Boerner (University of Illinois at

Chicago)

TU2.R2.1 Comparison of Model-Based Four-15:40 **Component Scattering Power**

Decompositions

Yoshio Yamaguchi, Gulab Singh, Cui Yi, Sang Eun Park, Hiroyoshi Yamada,

Ryoichi Sato

Niigata University, Japan

TU2.R2.2 **Multi-frequency Polarimetric Analysis**

16:00 of Sea Ice

T. Eltoft^{1,4}, J. Grahn¹, A. Doulgeris¹, C. Brekke¹, L. Ferro-Famil^{1,2}, B. Holt³ ¹Department of Physics and Technology, University of Tromsø, Norway, ²IETR, University of Rennes 1, France, ³Jet Propulsion Laboratory, California Institute of Technology, USA, ⁴Northern

Research Institute, Norway

TU2.R2.3 The Generalized Statistical 16:20 Complexity of PolSAR Data

> Alejandro C. Frery¹, Eliana S. de Almeida¹, Osvaldo A. Rosso^{1,2}

¹LaCCAN – Laboratório de Computação

Científica e Análise Numérica, Universidade Federal de Alagoas, Brazil. ²Laboratorio de Sistemas Complejos, Facultad de Ingeniería, Universidad de Buenos Aires, Argentina

TU2.R2.4 **Feature Extraction and Classification**

of PoISAR Images Based on Sparse 16:40 **Decomposition Theory**

> Bin Zou, Da Lu, Lamei Zhang Dept. of Information Engineering, Harbin Institute of Technology, China

TU2.R2.5 **Ship Detection Using Polarimetric**

RADARSAT-2 17:00 R. Touzi¹, J. Hurley², P.W. Vachon³

¹Canada Centre for Remote Sensing, Canada, ²MDA, Canada, ³Defence Research and Development Canada.

Canada

15:40-17:00 Room 3 (202A)

TU2.R3: Application - Forest / Vegetation Chair: Akira Kato (Chiba University)

TU2.R3.1 L-band SAR Data and Spatially 15:40 **Explicit Model to Analyse Forest** Loss between 2007 and 2030 in

Central Sumatra

Rajesh Bahadur Thapa, Masanobu Shimada,

Manabu Watanabe, Takeshi Motohka,

Tomohiro Shiraishi

Earth Observation Research Center, Japan Aerospace Exploration Agency

(JAXA), Japan

TU2.R3.2 Use of L-band PALSAR 16:00 **Backscattering Intensity for Estimating the Growing Stages of the**

Kazadi Sanga-Ngoie¹, Kotaro lizuka²,

Shoko Kobavashi¹ ¹Graduate School of Asia Pacific Studies. Ritsumeikan Asia Pacific University, Japan, ²Graduate School of Science, Chiba University, Japan

TU2.R3.3 **Evaluation of Multi-sensor SAR** 16:20 and Optical Data to Monitor Growth **Stages of Oilpalm Plants**

> Ram Avtar^{1,2}, R. Ishii¹, H. Kobayashi¹, H. Fadaei¹, S. Herath², R. Suzuki¹ ¹Research Institute for Global Change, Japan Agency for Marine-Earth Science and Technology (JAMSTEC), Japan, ²United Nations University, Institute for Sustainability and Peace (UNU-ISP), Japan

TU2.R3.4 Field Tree Measurement using 16:40 **Terrestrial Laser for Radar Remote** Sensing

> Akira Kato¹, Manabu Watanabe², Justin Morgenroth³, Christopher Gomez⁴ ¹Graduate School of Horticulture, Chiba University, Japan, ²Earth Observation Research Center, Japan Aerospace Exploration Agency, Japan, ³School of Forestry, College of Engineering, University of Canterbury, New Zealand, ⁴Department of Geography, University of Canterbury, New Zealand

15:40-17:20 Room 4 (202B)

TU2.R4: GPR/Advanced Radar/Antenna

Chair: Kazunori Takahashi (Tohoku University)

TU2.R4.1 Non-destructive Inspection of 15:40 **Buildings Using Radar Polarimetry**

Saika Okamura, Kazunori Takahashi,

Motovuki Sato

Center for Northeast Asian Studies.

Tohoku University, Japan

TU2.R4.2 **Correction Formulae for Soil** 16:00 **Roughness Parameters Estimated**

from a Surface Profile

Masahiko Nishimoto

Graduate School of Science and Technology, Kumamoto University,

Japan

TU2.R4.3 **Denoising and Detection of Reflected** 16:20 **Waves from Buried Pipes with**

Ground-penetrating Radar Data

Yoshihiro Ogino¹, Tomohiro Uchikado¹, Kazushi Nakano¹, Yasuyuki Nakamura², Tomohisa Ogawa², Takashi Matsuyama² ¹Department of Mechanical Engineering and Intelligent Systems, The University of Electro-Communications, Japan,

²The Nippon Signal Co., Ltd., Japan

TU2.R4.4 Design of a GPR Antenna Array for 16:40 **Asphalt Pavement Inspection**

> Hai Liu, Motoyuki Sato Center for Northeast Asian Studies, Tohoku University, Japan

TU2.R4.5 Road Watch Radar Development for 17:00 **Obstacle Detection and Warning**

> Jung S. Jung, Hee J. Yang, Young H. Seo, Young K. Kwag Department of Electronic Engineering and Avionics, Korea Aerospace University, Korea

Wednesday (Sept. 25)

8:40-10:20 Room 1 (201A)

WE1.R1: [Special Session] ALOS-2 Global Observation I

Co-Chairs: Masanobu Shimada (JAXA), Manabu Watanabe (JAXA)

WE1.R1.1 System Characteristics for Wide Swath L-band SAR onboard ALOS-2/ 8:40 PALSAR-2

Y.Okada¹, S. Nakamura¹, K. Iribe¹, Y. Yokota¹, M. Tsuji¹, K.Hariu¹, Y.Kankaku², S.Suzuki², Y.Osawa²,

M.Shimada²

¹Mitsubishi Electric Corporation, Japan, ²Japan Aerospace Exploration Agency,

Characteristic of L-band SAR Ocean WE1.R1.2 Measurements 9:00

Osamu Isoguchi¹, Masanobu Shimada² ¹Remote Sensing Technology Center of Japan, Japan, ²Japan Aerospace Exploration Agency, Japan

WE1.R1.3 **Autonomous Precision Orbit Control** 9:20 of ALOS-2 for Repeat-Pass SAR Interferometry

Toru Yamamoto¹, Isao Kawano¹, Takanori Iwata¹, Yoshihisa Arikawa¹, Hiroyuki Itoh¹, Masayuki Yamamoto², Ken Nakajima²

¹Japan Aerospace Exploration Agency. Japan, ²Mitsubishi Space Software Co., Ltd., Japan

WE1.R1.4 **Efficient Motion Compensation** 9:40 of SAR Imagery by Refocusing

Approach Motofumi Arii

Mitsubishi Space Software Co., Ltd.,

WE1.R1.5 **Trial Biomass Map Production in** 10:00 Riau Province, Indonesia Using L-band SAR Data

Manabu Watanabe, Takeshi Motohka, Rajesh Bahadur Thapa,

Tomohiro Shiraishi, Masanobu Shimada Earth Observation Research Center, Japan Aerospace Exploration Agency (JAXA), Japan

8:40-9:40 Room 2 (201B)

WE1.R2: Bistatic and Passive Radar Chair: Seisuke Fukuda (JAXA)

An Experiment of Ku-band Air-WE1.R2.1 borne Bistatic SAR with a Stationary 8:40 Receiver

Kazuhiko Yamamoto¹,

Kei Suwa¹, Masayoshi Tsuchida¹, Tomoya Yamaoka¹, Jun Endo², Kei Hayashi², Hideki Hasegawa²,

Toshio Wakayama1

¹Information Technology R&D Center, Mitsubishi Electric Corporation, Japan, ²Kamakura Works, Mitsubishi Electric

Corporation, Japan

WE1.R2.2 An Effective CLEAN Algorithm for 9:00 **Interference Cancellation and Weak Target Detection in Passive Radar**

Bin Feng, Tianyun Wang, Changchang Liu, Chang Chen,

Weidong Chen

Department of EEIS, University of Science and Technology of China,

WE1.R2.3 **Quasi-Monostatic Algorithm for** 9:20 **GNSS-SAR**

Takuji Ebinuma, Yoshinori Mikawa, Shinichi Nakasuka Department of Aeronautics and Astronautics, The University of Tokyo, Japan

8:40-10:20 Room 3 (202A)

WE1.R3: Application - InSAR

Chair: Masato Furuya (Hokkaido University)

WE1.R3.1 Subsidence Monitoring Using SAR

8:40 Interferometry Time Series Analysis

along the Chao Phraya River Areas

Akiko Tanaka, Aritoshi Mio Geological Survey of Japan, AIST,

Japan

WE1.R3.2 Long-term Monitoring of Datun
9:00 Volcanoes Using Multiple SAR Data

9:00 Volcanoes Using Multiple SAR Data Shih-Yuan Lin¹, Yi-Ning Hung¹,

Jung-Rack Kim², Chia-Sheng Hsieh³
¹Department of Land Economics,
National Chengchi University, Taiwan,

²Department of Geoinformatics,

University of Seoul, Korea, ³Department of Civil Engineering, National Kaohsiung University of Applied Sciences, Taiwan

WE1.R3.3 InSAR Observation and Numerical
9:20 Modeling of the Water Vapor Signal
during 2008 Seino Heavy Rain Event,

Central Japan

Youhei Kinoshita¹, Masanobu Shimada²,

Masato Furuya¹

¹Department of Natural History Sciences, Hokkaido University, Hokkaido, Japan, ²Earth Observation Research Center, Japan Aerospace

Exploration Agency, Japan

WE1.R3.4 Measurements of Surface 9:40 Deformation of Ice Sheets in

Antarctica Using TanDEM-X Data

Seung Hee Kim, Duk-jin Kim School of Earth and Environmental Sciences, Seoul National University,

Korea

WE1.R3.5 Some Results of Long Term

10:00 Geodynamic Monitoring of Oil and

Gas Fields and Power Engineering Infrastructure Using ENVISAT and

ALOS SAR Data

Anton Filatov, Arkadiy Evtyushkin,

Vitalii Bryksin

Research Institute of Applied Informatics and Mathematical Geophysics, Immanuel Kant Baltic Federal University, Russia

10:40-12:20 Room 1 (201A)

WE2.R1: [Special Session] ALOS-2 Global Observation II

Co-Chairs: Masanobu Shimada (JAXA),

Manabu Watanabe (JAXA)

WE2.R1.1 Results from ALOS and Expectations to ALOS-2 in Earthquake/volcano

Research

Taku Ozawa, Yousuke Miyagi Department of Monitoring and Forecasting Research, National Research Institute for Earth Science and Disaster Prevention, Japan

WE2.R1.2 Ionospheric Effects Correction of ALOS PALSAR Interferometry in

Antarctica

Hiroshi Kimura¹, Taiki Andoh²
¹Department of Electrical, Electronic and Computer Engineering, Gifu University, Japan, ²Graduate School of Engineering, Gifu University, Japan

WE2.R1.3 Monitoring Changes in Tropical 11:20 Forests Using L-band Synthetic Aperture Radar Data

Takeshi Motohka,

Masanobu Shimada, Manabu Watanabe, Noriyuki Kawano, Tomohiro Shiraishi, Rajesh Bahadur Thapa

Japan Aerospace Exploration Agency

(JAXA), Japan

WE2.R1.4 Calibration and Validation of the Pi-11:40 SAR-L2

Masanobu Shimada, Noriyuki Kawano, Manabu Watanabe, Takeshi Motooka, Masato Ohki

Earth Observation Research Center, Japan Aerospace Exploration Agency, Japan

WE2.R1.5 Monitoring of the Changes of Glacier 12:00 and Ice Sheet on Polar Region by L-band SAR data

Tsutomu Yamanokuchi¹, Koichiro Doi², Kazuki Nakamura³, Shigeru Aoki⁴, Kazuo Shibuya²

¹Remote Sensing Technology Center of Japan (RESTEC), Japan, ²National Institute of Polar Research (NIPR), Japan, ³Nihon University, Japan, ⁴Institute of Low Temperature Science, Hokkaido University, Japan

10:40-12:00 Room 2 (201B)

WE2.R2: High Resolution SAR Processing Chair: Jung-hyo Kim (EADS Astrium GmbH)

WE2.R2.1 Second Order Motion Compensation 10:40 for Squinted Spotlight Synthetic Aperture Radar

Minh Phuong Nguyen,

Samer Ben Ammar Laboratorium für

Informationstechnologie, Leibniz Universität Hannover, Germany

WE2.R2.2 Multichannel Full-aperture Azimuth 11:00 Processing for Beam Steering SAR

Guang-Cai Sun¹, Meng-dao Xing¹, Xiang-Gen Xia², Yu-feng Wu¹,

Zheng Bao¹

¹State Key Lab for Radar Signal Processing, Xidian University, China, ²Department of Electrical and Computer Engineering, University of Delaware, USA

WE2.R2.3 Ghost Target Suppression in GMTI 11:20 Using Multi-Channel SAR System

Lei Guo^{1,2}, Robert Wang^{1,2}, Yunkai Deng^{1,2}, Wei Xu^{1,2}

¹Department of Space Microwave Remote Sensing System, Institute of Electronics, Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China

WE2.R2.4 A New Approach of FMCW-11:40 DBS Altimeters for Terrain-aided Navigation

Sanghyuck Choi¹, Joohwan Chun¹, Inchan Paek², Kyungju Yoo²
¹Department of Electrical Engineering, Korea Advanced Institute of Science and Technology, Korea, ²PGM Center, Samsung Thales Co., Korea

10:40-12:00 Room 3 (202A)

WE2.R3: SAR Interferometry I

Chair: Yo Fukushima (Kyoto University)

WE2.R3.1 Performance Improvement of InSAR

10:40 **Local Co-registration Method with Multiresolution Interferogram**

Ryo Natsuaki, Akira Hirose

Department of Electrical Engineering

and Information Systems, The University of Tokyo, Japan

3D Terrain Information WE2.R3.2

11:00 **Reconstruction Application for**

Airborne InSAR

Shiori Kyu¹,

Tomoko Ishii¹, Kenzaburo Hagiwara¹, Masanori Miyawaki¹, Takashi Fujimura², Tsunekazu Kimura², Toshihiko Umehara³,

Tatsuharu Kobayashi³

¹NEC Aerospace Systems, Ltd., Japan, ²NEC Corporation, Japan, ³National Institute of Information and Communications Technology (NICT),

Japan

InSAR Phase Filtering in Wavelet WE2.R3.3

11:20 Domain

Lu Liu^{1,2}, Yongqiang Chen²,

Robert Wang², Yunkai Deng², Kun Wu^{1,2},

Yongchun Lu³

¹Department of Space Microwave Remote Sensing System, Institute of Electronics, Chinese Academy of Sciences, China, ²The University of Chinese Academy of Sciences, China, ³China Centre for Resources Satellite

Data and Application, China

WE2.R3.4 **Correction of DInSAR Noise Using**

11:40 **GNSS Measurements**

Yo Fukushima

Disaster Prevention Research Institute,

Kyoto University, Japan

13:40-15:00 Room 1 (201A)

WE3.R1: Spaceborne and Airborne SAR Systems and Missions II

Co-Chairs: Takeshi Motooka (JAXA),

Josaphat Tetuko Sri Sumantyo (Chiba

University)

WE3.R1.1 The Aftermath of Hurricane Sandy, 13:40 Imaged with the Modular, Multi-Band

SlimSAR

Evan C. Zaugg, Matthew C. Edwards

ARTEMIS, Inc. USA

WE3.R1.2 **Azimuth Ambiguity Suppression** 14:00 with Triple Channel Receivers -- An

Experiment Result using Airborne Ku-Band Synthetic Aperture Radar --

Masayoshi Tsuchida¹, Tomoya Yamaoka¹, Kei Suwa¹, Kazuhiko Yamamoto¹, Toshio Wakayama¹, Shohei Nakamura², Hideki Hasegawa², Kei Hayashi², Jun Endo², Yosuke Nakano²

¹Information Technology R&D Center, Mitsubishi Electric Corporation, Japan, ²Kamakura Works, Mitsubishi Electric

Corporation, Japan

WE3.R1.3 First Results from the MetaSensing **Airborne Moving Target Indication** 14:20

and Tracking System

Linda Corucci, Adriano Meta MetaSensing BV, The Netherlands

WE3.R1.4 Present and Future of L band SAR 14:40 for Small Satellites

Korehiro Maeda

Innovative Nano Satellite Technology Center, The University of Tokyo, Japan

13:40-15:20 Room 2 (201B)

WE3.R2: Disasters Applications Chair: Motofumi Arii (MSS)

WE3.R2.1 **Automatic Detection of Landslides** 13:40 from SAR Images: Application to the

2011 Kii Landslides

Masumi Yamada. Manabu Hashimoto. Yo Fukushima, Yuki Matsushi,

Masahiro Chigira

Disaster Prevention Research Institute,

Kyoto University, Japan

WE3.R2.2 **Deformation Parameter Estimation in** 14:00 Low-coherence Areas Using a Multisatellite InSAR Approach

> Yu Morishita¹, Ramon F. Hanssen² Geodetic Department, Geospatial Information Authority of Japan (GSI), Japan, ²Department of Geoscience and Remote Sensing, Delft University of Technology, The

Netherlands

WE3.R2.3 Landuse/Landcover Based Flood 14:20 Area Assessment Using L- and C-band SAR Data of Coastal Region

of Andhra Pradesh, India

R. Manavalan¹, Y.S. Rao¹, B. Krishna Mohan¹, G. Venkataraman¹,

Chattopadhyay Subrata²

Centre of Studies in Resources

Engineering, Indian Institute of Technology, India. ²Centre for Development of Advanced

Computing, India

WE3.R2.4 **Development of Spotlight Mode** 14:40 SAR "Live SAR" for Flood Area Surveillance

Yuichiro Kogi¹, Hiroyuki Ikezi², Atsushi Mase², Naoki Ito², Motoyuki Sato³, Akihiro Suzuki⁴, Fuminori Sakai⁵,

Shintaro Mizukami⁶, Katsushige Kamewari⁶,

Masaaki Inutake⁷ ¹Department of Engineering, Fukuoka Institute of Technology, Japan, ²Art, Science and Technology Center for Cooperative Research, Kyushu University, Japan, ³Center for Northeast Asia Studies, Tohoku University, Japan, ⁴Smll business owner, Japan, ⁵Sakura Tech Corp., Japan, ⁶Tamagawa Seiki CO., LTD., Japan, ⁷Research Institute of Electrical Communication. Tohoku University. Japan

WE3.R2.5 A Small Satellite C-band SAR Mission 15:00 **Payload Definition for Disasters** Management

> James Yu-Chen Yaung¹, Kun-Shan Chen², Shyh-Jong Chung³, Shiann-Jeng Yu¹,

Hao-Lun Hung², Yun-Jui Lee³,
Bor-Han Wu¹, Chih-Li Chang¹, I-Young Tarn¹,
Nai-Chen Liu¹, Chih-Yuan Chu²,
Ru-Muh Yang¹, Ming-Yuan Yeh¹,

Tung-Hung Tsai1

¹National Space Organization, National Applied Research Laboratories, Taiwan, ²Communication Research Center, National Central University, Taiwan, 3 Institute of Communication Engineering, National Chiao-Tung University, Taiwan

13:40-15:00 Room 3 (202A)

WE3.R3: SAR Interferometry II

Chair: Tatsuharu Kobayashi (NICT)

WE3.R3.1 Zero-Bandwidth SAR (ZB-SAR) for

13:40 **Sub-Surface Imaging**

Keith Morrison¹, John Bennett²

¹Department of Informatics and Systems Engineering, Cranfield University, UK, ²Private consultant (retired), UK

WE3.R3.2 Proposal of Nonhollow Singularity-14:00 Spreading Phase Unwrapping

Gen Oshiyama¹, Akira Hirose²

¹Department of Bioengineering, The University of Tokyo, Japan, ²Department

of Electrical Engineering and

Information Systems, The University of

Tokyo, Japan

WE3.R3.3 SAR Interferometric Phase and Skew

14:20 Fractional Brownian Motion Model

Donny Danudirdjo, Akira Hirose Department of Electrical Engineering and Information Systems, The

University of Tokyo, Japan

WE3.R3.4 Performance Analysis of GPU-based 14:40 SAR and Interferometric SAR Image

Processing

Achille Peternier¹, Marco Defilippi², Paolo Pasquali², Alessio Cantone², Rolf Krause¹, Raffaele Vitulli³, Fumitaka Ogushi⁴, Alberto Meroni⁴ ¹Institute of Computational Science (ICS), University of Lugano (USI), Switzerland, ²Sarmap SA, Switzerland, ³ESA-ESTEC, The Netherlands, ⁴Exelis VIS K.K., Japan

Poster

15:40-17:20 Room 5 (Multi-Purpose Hall)

A. Disaster Monitoring

Co-Chairs: **Takeo Tadono** (*JAXA*), **Ryoichi Sato** (*Niigata University*)

WE4.P A.1 Multi-band Spaceborne SAR Observations of Tsunami Damaged Agricultural Fields

Chinatsu Yonezawa¹, Manabu Watanabe², Genya Saito³ ¹Graduate School of Agricultural Science Faculty of Agriculture, Tohoku University, Japan, ²Earth Observation Research Center, Japan Aerospace Exploration Agency, Japan, ³Innovative Research-initiatives, Tokyo Institute of Technology, Japan

WE4.P A.2 Experiment Study on Deformation Monitoring Using Ground-Based SAR

Yang Xiaolin^{1,2,3}, Wang Yanping^{1,2}, Qi Yaolong^{1,2}, Tan Weixian^{1,2}, Hong Wen^{1,2}
¹Institute of Electronics, Chinese Academy of Sciences(IECAS), China, ²Science and Technology on Microwave Imaging Laboratory, China, ³University of Chinese Academy of Science, China

WE4.P A.3 Landslide Risk Assessment with Multi Pass DlnSARanalysis : A Case Study over Uljin, Korea

Hyewon Yun¹, Jung Rack Kim¹, Shih-Yuan Lin², JaeMyeong Kim¹, HoJoon Park¹
¹Department of Geoinformatics, University of Seoul, Korea, ²Department of Land Economics, National Chengchi University, Taiwan

WE4.P A.4 Changes of Polarimetric Scattering Characteristics of ALOS PALSAR Caused by Volcanic Ash Fall Analyzed by the Unsupervised Wishart Classifier

Hiroshi Ohkura Department of Global Environment Studies, Hiroshima Institute of Technology, Japan

WE4.P A.5 An Integrated Software Package for the Measurement, Monitoring and Modelling of Geophysical Phenomena

Simone Atzori^{1,2}, Paolo Pasquali², Alessio Cantone², Marco De Filippi², Paolo Riccardi², Fumitaka Ogushi³, Alberto Meroni³ ¹Istituto Nazionale di Geofisica e Vulcanologia (INGV), Italy, ²Sarmap s.a, Switzerland, ³Exelis VIS K.K., Japan

B. SAR Applications

WE4.P B.1 Curvelet-Based Change Detection of Urban Land-Covers Using SAR Images

Mohammad A. Fazel¹, Jalal Amini¹, Saeid Homayouni²
¹Colleague of Engineering, University of Tehran, Iran, ²Department of Geography, University of Ottawa, Canada

WE4.P B.2 Monitoring of Ground Deformation in Beijing Using SBAS-DInSAR Technique

Gang Liu, Robert Wang, Yun Kai Deng, Runpu Chen, YunFeng Shao, Wei Xu, Dengjun Xiao Department of Space Microwave Remote Sensing System, Institute of Electronics, Chinese Academy of Sciences, China

WE4.P B.3 Change Detection Methods in High Resolution Cosmo SkyMed Images

Sofia Lanfri¹, Marcelo Scavuzzo¹, Mario A. Lanfri¹, Gabriela Palacio², Alejandro C. Frery³
¹Instituto Mario Gulich, Comisión Nacional de Actividades Espaciales, Argentina, ²Universidad Nacional de Río Cuarto, Argentina, ³Universidade Federal de Alagoas, Brazil

WE4.P B.4 The Application of InSAR Time Series for Landcover Classification

Hye Won Yun, Jung Rack Kim, Choi Yun Soo, Ha Su Yoon Department of Geoinformatics, University of Seoul, Korea

WE4.P B.5 Classification of High-Resolution SAR Imagery by Random Forest Classifier

Xi Ye^{1,2}, Hong Zhang¹, Chao Wang¹, Fan Wu¹, Bo Zhang¹, Yixian Tang¹

¹Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China, ²College of Computing & Communication Engineering, University of Chinese Academy of Sciences, China

WE4.P B.6 An Improved Regional Integration Method Based on Size-constrain Region Merging

Fengyuan Zhen^{1,2}, Ling Fan¹, Chao Wang²
¹School of Science, Beijing Jiaotong University, China, ²Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China

WE4.P B.8 Detection of Water-logging in a Large Number of Paddy Fields

Naoki Ishitsuka Ecosystem Informatics Division, National Institute for Agro-Environmental Sciences, Japan

WE4.P B.9 Automated Method for Tracing Shorelines in L-band SAR Images

Tomohito Asaka¹, Yoshiyuki Yamamoto², Sadayoshi Aoyama¹, Keishi Iwashita¹, Katsuteru Kudou¹
¹College of Industrial Technology, Nihon

College of Industrial Technology, Nihon University, Japan, ²Department of Urban Environment, Faculty of Engineering, Aichi Institute of Technology, Japan

WE4.P B.10 Non Supervised Method for Low-Backscattering Area Extraction in High Resolution SAR Image

Long Zhao^{1,2}, Hong Zhang¹, Fan Ling², Chao Wang¹
¹Key Laboratory of Digital Earth

'Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China, ²School of Science, Beijing Jiaotong University, China

C. Advances in Analysis Techniques

WE4.P C.1 Effect of AD Converter Saturation on SAR System Performance

Zhou Li, Chunsheng Li, Ze Yu, Yan Wang School of Electronics and Information Engineering, BeiHang University, China

WE4.P C.2 An Advanced InSAR Algorithm for Surface Deformation Monitoring: SqueeSAR™

Shigeki Kuzuoka¹, Alessandro Ferretti², Fabrizio Novali²
¹Satellite Business Network, Japan,
²Tele-Rilevamento Europa (T.R.E.), Italy

WE4.P C.3 Method to Obtain Phase Continuous ScanSAR Interferogram

Yoshikuni Shindo, Shino Ogino, Yoshiaki Watanabe, Yoshifumi Kawatani, Atsushi Yoshida, Takeshi Nishimura Mitsubishi Space Software Co.,Ltd., Japan

WE4.P C.4 Scene Classification from PolSAR Image Using Medium-level Features

Yongfeng Cao, Junying Ren, Caixia Su, Jianjuan Liang School of Mathematics and Computer Science, Guizhou Normal University,

WE4.P C.5 Comparison of Model-Based Polarimetric Decomposition Algorithms

China

Daisuke Sato, Takuma Watanabe, Hiroyoshi Yamada, Yoshio Yamaguchi Graduate School of Science & Technology, Niigata University, Japan

WE4.P C.6 A Qualitative Analysis of Backscattered Radar Waves from the Lunar Surface

Arnab Muhuri, Swinky Dhingra, Avik Bhattacharya, Gopalan Venkataraman Centre of Studies in Resources Engineering, Indian Institute of Technology Bombay, India

WE4.P C.7 Coherent Scatterers Characterization Using Time-Frequency Analysis of PolSAR Data

Canbin Hu^{1,2}, Siqian Zhang¹, Hai Liu³, Lingjun Zhao¹, Gangyao Kuang¹
¹College of Electronic Science and Engineering, National University of Defense Technology, China, ²Institute of Electronics and Telecommunications of Rennes, University of Rennes 1, France, ³Center for Northeast Asian Studies, Tohoku University, Japan

WE4.P C.8 Comparison of Speckle Filtering Methods for POLSAR Analysis of Earthquake Damaged Areas

Kazutomo Yamamoto, Yoshio Yamaguchi, Sang-Eun Park, Yi Cui, Hiroyoshi Yamada *Niigata University, Japan*

WE4.P C.9 Experimental Evaluations of Polarimetric Observation for Bistatic Radar Using GPS Reflected Signals

Hikaru Egawa¹, Hirobumi Saito², Seisuke Fukuda²
¹School of Engineering, University of Tokyo, Japan, ²Institute of Space and Astronautical Science (ISAS), Japan Aerospace Exploration Agency (JAXA), Japan

D. SAR Signal Processing

WE4.P D.1 Study on Orbit Determination Precision for High Resolution Spaceborne SAR

Yujing Liu, Chunsheng Li, Na Pu, Ze Yu, Haojie Zhang School of Electronics and Information Engineering, BeiHang University, China

WE4.P D.2 An Efficient Algorithm for Single-/ Multi-channel SAR Superresolution Imaging of Large Scenes

Zenghui Li, Junjun Yin, Jian Yang Department of Electronic Engineering of Tsinghua University, China

WE4.P D.3 A New Fast Back-Projection Algorithm Using Polar Format Algorithm

Ze-Min Yang, Guang-Cai Sun, Meng-Dao Xing The State Key Lab for Radar Signal Processing, Xidian University, China

WE4.P D.4 A New Local Feature Extraction in SAR Image

Tao Tang¹, Deliang Xiang¹, Hai Liu², Yi Su¹

¹College of Electronic Science & Engineering, National University of Defense Technology, China, ²Center for Northeast Asian Studies, Tohoku University, Japan

WE4.P D.5 A Method of Global Optimization Tracking for Airborne Wide Area Surveillance Systems

Kun Wu^{1,2}, Fengjun Zhao², Shichao Zheng^{1,2}, Wei Xu², Robert Wang²

¹Space Microwave Remote Sensing System Department, Institute of Electronics, Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China

WE4.P D.6 New Applications of Parameter-Adjusting Polar Format Algorithm in Spotlight Forward-Looking Bistatic SAR Processing

Hairong Zhang, Yan Wang, Jingwen Li School of Electronic and Information Engineering, Beihang University, China

WE4.P D.7 On Compressed Sensing Applied to 2-D SAR Imaging

Peng Xiao, Ze Yu, Chunsheng Li, Yan Wang School of Electronics and Information Engineering, BeiHang University, China

WE4.P D.8 Study on Motion Compensation for Airborne Forward Looking Array SAR by Time Division Multiplexing Receiving

Zhang Ying-jie^{1,2}, Han Kuo-ye^{1,2}, Wang Yan-ping¹, Tan Wei-Xian¹, Hong Wen¹
¹National Key Laboratory of Science and Technology on Microwave Imaging, Institute of Electronics, Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China

WE4.P D.9 High Resolution Spaceborne SAR Imaging Algorithm Using Chaotic FM Signals

Yufeng Li¹, Zhongma Cui², Ze Yu¹, Haojie Zhang¹
¹School of Electronics and Information Engineering, Beihang University, China, ²Institue No.25 of the Second Academy, China Aerospace Science & Industry Crop, China

E. SAR Systems and Sensors

WE4.P E.1 MIMO SAR-Based Wide-Swath Remote Sensing

Wen-Qin Wang, Huaizong Shao, Jingye Cai School of Communication and Information Engineering, University of Electronic Science and Technology of China, China

WE4.P E.2 Diversity Schemes Analysis for MIMO Synthetic Aperture Radar

Kuoye Han^{1,2}, Yanping Wang², Yingjie Zhang^{1,2}, Weixian Tan², Wen Hong²

¹University of Chinese Academy of Sciences, China, ²Institute of Electronics, the Chinese Academy of Sciences, China

WE4.P E.3 Multi-Pass Stepped Frequency Imaging of Geosynchronous SAR

Zhiqian Wang, Chunsheng Li, Ze Yu, Yan Wang

School of Electronics and Information Engineering, BeiHang University, China

WE4.P E.4 Signal Processing of Arc FMCW SAR

Yunhua Luo, Hongjun Song, Robert Wang, Zheng Xu, Yongli Li Department of Space Microwave Remote Sensing System, Institute of Electronics, Chinese Academy of Sciences, China

WE4.P E.5 Improving the Azimuth Resolution Based on Ground Based Spotlight SAR

Zhang Jun, Tong Yongmu, Wang Yaxin, Zhang Jianmin Electronic Department, Tianjin University of Technology and Education, China

WE4.P E.6 The Novel FastGBSAR Sensor: Deformation Monitoring for Dike Failure Prediction

Sabine Roedelsperger, Alex Coccia, Daniel Vicente, Christian Trampuz, Adriano Meta MetaSensing BV, The Netherlands

WE4.P E.7 An Experimental Ground-based SAR System for Studying SAR Fundamentals

Viet T. Vu, Dheeraj N. Nehru, Mats I. Pettersson, Thomas K. Sjögren Department of Electrical Engineering, Blekinge Institute of Technology, Sweden

F. Radar Technology

WE4.P F.1 The Development and Performance of Chirp Pulse Generator and Processor for Pi-SAR-L2

Isamu Oihara, Takashi Fujimura, Hideharu Tozuka, Tsunekazu Kimura NEC Corporation, Japan

WE4.P F.2 Review and Forecast of Quantum Radar

Peng Lin, Ze Yu, Chunsheng Li School of Electronic and Information Engineering, Beihang University, China

WE4.P F.3 Sparse Imaging Using Improved OMP Technique in FD-MIMO Radar for Target off the Grid

Tianyun Wang, Changchang Liu, Li Ding, Hongchao Lu, Weidong Chen Department of Electronic Engineering and Information Science, University of Science and Technology of China, China

Thursday (Sept. 26)

8:40-10:20 Room 1 (201A)

TH1.R1: [Special Session] SAR Application - Natural **Disaster Monitoring I**

Co-Chairs: Toshifumi Moriyama (Nagasaki

University), Takashi Nonaka (PASCO)

TH1.R1.1 Spaceborne SAR Data Analysis for 8:40 Marine Debris after the Great East Japan Earthquake

Yoshifumi Aoki, Motofumi Arii,

Masakazu Koiwa

Mitsubishi Space Software Co., Ltd.,

Japan

TH1.R1.2 **Mapping Displacement around Tokyo** 9:00 **International Airport after The Great** East Japan Earthquake 2011 Derived

from TerraSAR-X Imageries

Takashi Nonaka, Toshifumi Hiramatsu Satellite Business Division, PASCO CORPORATION, Japan

TH1.R1.3 **Damage Detection after Earthquake** by an X-band High Resolution 9:20 Airborne SAR

Tatsuharu Kobayashi, Toshihiko Umehara,

Jyunpei Uemoto, Makoto Satake, Shoichiro Kojima, Takeshi Matsuoka, Akitsugu Nadai, Seiho Uratsuka Applied Electromagnetic Research Institute. National Institute of Information and Communications Technology. Japan

TH1.R1.4 **Mathematical Morphology Approach** 9:40 to the Detection of the off the Pacific

Coast of Tohoku Japan Tsunami **Reached Farmland from PALSAR**

Data

Yasuharu Yamada

National Institute for Rural Engineering, National Agriculture and Food Research

Organization, Japan

TH1.R1.5 **Detection of Damaged Area by** 10:00 **Polarimetric SAR**

Motoyuki Sato, Si-Wei Chen Center for Northeast Asian Studies. Tohoku University, Japan

8:40-9:40 Room 2 (201B)

TH1.R2: Application - Ocean

Co-Chairs: Jian Yang (Tsinghua University), Akitsugu Nadai (NICT)

Dual Co-polarized SAR Imaging of TH1.R2.1 8:40 the Ocean Surface Phenomena

Alexander Myasoedov¹, Vladimir Kudryavtsev¹, Bertrand Chapron^{1,2}

¹Satellite Oceanography Laboratory, RSHU, Russia, ²Laboratoire

d'Ocanographie Spatiale, IFREMER,

France

TH1.R2.2 **Evaluation of Wave Height Retrieval** 9:00

Algorithm for Ocean SAR Image by **Using Numerical Simulation** Takero Yoshida, Chang-Kyu Rheem Institute of Industrious Science, The

University of Tokyo, Japan

TH1.R2.3 A New Ship Detector for ScanSAR 9:20 **Imagery**

Ziwei Wang^{1,2}, Chao Wang¹, Hong Zhang¹, Fan Wu¹, Bo Zhang¹, Yixian Tang

¹Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China, ²University of Chinese Academy

of Sciences, China

8:40-10:20 Room 3 (202A)

TH1.R3: SAR/ISAR Signal Processing I Chair: Hiroshi Kimura (Gifu University)

Modification of Super-spatially TH1.R3.1 Variant Apodization (super-SVA) for 8:40

Sidelobe Reduction

Seung-Phil Lee¹, S. B. Kim², J. C. Woo³, S. M. Lee¹, J. E. Kim¹, Young-Soo Kim¹ ¹Department of Electrical Engineering, Pohang University of Science and Technology (POSTECH), Korea, ²Digitron Co., Ltd., Korea, ³ISR R&D Lab, LIG Nex1 Co., Ltd., Korea

TH1.R3.2 **Processing High Squint FMCW SAR** 9:00 **Data Using Extended Inverse Chirp-Z**

Transform Algorithm

Yue Liu, Robert Wang, Yunkai Deng, Fengiun Zhao, Zhimin Zhang Spaceborne Microwave Remote Sensing System Department, Institute of Electronics, Chinese Academy of Sciences, China

TH1.R3.3 Segmented BAQ Algorithm for SAR 9:20 Raw Data of Strong Target in Weak

Background

Haojie Zhang, Jie Chen, Jingwen Li,

Hongcheng Zeng, Wei Yang

School of Electronic and Information Engineering, Beihang University, China

Effects of Centre-beam TH1.R3.4

9:40 Approximation on Airborne Repeatpass Interferometric SAR

Yin-wei Li^{1,2}, Mao-sheng Xiang¹,

Yan-ping Wang¹

¹National Key Laboratory of Science and Technology on Microwave Imaging, Institute of Electronics, Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China

TH1.R3.5 **Nonstationary Image Noise Removal** 10:00

Fatih Porikli¹, Akshay Soni², Kei Suwa³ ¹Mitsubishi Electric Research Labs, USA, ²University of Minnesota, USA, ³Mitsubishi Electric Corporation, Japan

10:40-12:20 Room 1 (201A)

TH2.R1: [Special Session] SAR Application - Natural **Disaster Monitoring II**

Co-Chairs: Toshifumi Morivama (Nagasaki University), Takashi Nonaka (PASCO)

TH2.R1.1 **Building Damage Estimation by** 10:40 **Integration Between Seismic** Intensity Information and ALOS/ PALSAR Images of the 2007 Peru Earthquake

Masashi Matsuoka¹, Miguel Estrada² ¹Department of Built Environment, Tokyo Institute of Technology, Japan, ²Japan-Peru Center for Earthquake Engineering and Disaster Mitigation (CISMID), National University of Engineering, Peru

Ground Deformation Related to TH2.R1.2 11:00 **Active Faults Detected by Persistent** Scatterer InSAR

Manabu Hashimoto Disaster Prevention Research Institute, Kyoto University, Japan

Case Study of Landslides TH2.R1.3 11:20 Recognition Using Dual/Quad Polarization Data of ALOS/PALSAR

Ryoichi Furuta¹, Kazuhide Sawada² ¹Research & Development Department, Remote Sensing Technology Center of Japan, Japan, ²River Basin Research Center, Gifu University, Japan

TH2.R1.4 Trial of Volcanic Ash Detection Using 11:40 Pi-SAR-L2

Manabu Watanabe¹, Noriyuki Kawano², Tadanori Ishizuka³, Yukinori Nowa³, Takeshi Shimizu³, Masanobu Shimada¹ ¹EORC, JAXA, Japan, ²German Aerospace Center (DLR), Germany, ³Erosion and Sediment Control Research Group, Public Works Research Institute, Japan

TH2.R1.5 **Volcanic Monitoring by Polarimetric** and Interferometric Airborne SAR (Pi-12:00 SAR2)

Tatsuharu Kobayashi, Toshihiko Umehara, Jyunpei Uemoto, Makoto Satake, Shoichiro Kojima, Takeshi Matsuoka, Akitsugu Nadai, Seiho Uratsuka Applied Electromagnetic Research Institute, National Institute of Information and Communications Technology, Japan

10:40-12:00 Room 2 (201B)

TH2.R2: Application - Land Use / Land Cover Chair: Masato Ohki (JAXA)

A Case Study of Land Cover TH2.R2.1 10:40 **Classification Using Combined PolSAR** and Optical

Takeo Tadono¹, Atsuko Nonomura²,

Hitoshi Moriya²

¹Earth Observation Research Center, Japan Aerospace Exploration Agency. Japan, ²Faculty of Engineering, Kagawa

University, Japan

Evaluation of PollnSAR Classification TH2.R2.2 11:00 by ALOS/PALSAR

Masato Ohki, Masanobu Shimada Earth Observation Research Center, Japan Aerospace Exploration Agency, Japan

Classification of RISAT-1 Hybrid TH2.R2.3 11:20 **Polarimetric Data for Various Land Features**

Varsha Turkar¹, Shaunak De¹, G. G. Ponnurangam¹, Rinki Deo¹,

Y. S. Rao¹, Anup Das²

¹CSRE, Indian Institute of Technology - Bombay, India, ²Space Application

Center, ISRO, India

TH2.R2.4 **Experiment on Human and Vehicle** 11:40 **Detection Using Pi-SAR2**

Takashi Fujimura¹, Kiyonobu Ono¹, Hidefumi Nagata¹, Hideharu Tozuka¹, Tsunekazu Kimura¹, Minoru Murata¹, Tomoko Ishii², Yoshitaka Oura², Masanori Miyawaki²

¹NEC Corporation, Japan, ²NEC Aerospace Systems, Ltd., Japan

10:40-12:00 Room 3 (202A)

TH2.R3: SAR/ISAR Signal Processing II

Chair: Shohei Kidera (University of Electro-

Communications)

TH2.R3.1 **ALOS PALSAR Tomography:** 10:40

An Experiment in Suburban **Environment**

Hiroshi Kimura

Department of Electrical, Electronic and Computer Engineering, Gifu University,

Japan

TH2.R3.2 **An Evaluation on Moving Target Parameter Estimation Using** 11:00

Synthetic Aperture Radar Systems

Mats I. Pettersson, Thomas K. Sjögren,

Viet Vu

Department of Electrical Engineering, Blekinge Institute of Technology,

Sweden

TH2.R3.3 **Bistatic ISAR Signal Modelling and**

11:20 **Image Analysis**

> Shougang Chai, Weidong Chen Department of Electronic Engineering and Information Science, University of Science and Technology of China,

China

A Novel MISO-ISAR for Moving TH2.R3.4

11:40 **Airborne Target**

Shougang Chai, Weidong Chen Department of Electronic Engineering and Information Science, University of Science and Technology of China,

China

10:40-12:20 Room 4 (202B)

TH2.R4: Advanced and Innovative SAR Concepts and **Ground Based Systems**

Chair: Masahiko Nishimoto (Kumamoto

University)

TH2.R4.1 FPGA Based Architecture for Real-10:40 time SAR Processing with Integrated

Motion Compensation

M. Pfitzner, F. Cholewa, P. Pirsch,

H. Blume

Institute of Microelectronic Systems (IMS), Leibniz University Hannover,

Germany

TH2.R4.2 **High Resolution Scan Mode SAR** 11:00 **Using Compressive Sensing**

Dehong Liu, Petros T. Boufounos Mitsubishi Electric Research

Laboratories, USA

Long-term Landslide Monitoring by TH2.R4.3

11:20 GB-SAR Interferometry in Kurihara, Japan

Masavoshi Matsumoto¹.

Kazunori Takahashi², Motoyuki Sato² ¹Graduate School of Environmental Studies, Tohoku University, Japan, ²Center for Northeast Asian Studies,

Tohoku University, Japan

TH2.R4.4 **Effects of Satellite Attitude Jitter on** 11:40 Spaceborne Multichannel SAR Image

Qualities

Jian Zhou, Chunsheng Li, Wei Yang,

Jie Chen

School of Electronic and Engineering,

Beihang University, China

TH2.R4.5 **Development of a Ground-based Synthetic Aperture Radar for Land** 12:00

Deformation Monitoring

Koo Voon-Chet¹, Helmut Essen², Josaphat Tetuko Sri Sumantyo³, Lim Tien-Sze¹, Chan Yee-Kit¹,

Habibah Lateh⁴

¹Centre for Remote Sensing and Surveillance Technologies, Multimedia University, Malaysia, ²Maxonic GmbH, Germany, ³Center for Environmental Remote Sensing, Chiba University, Japan, ⁴School of Distance Education, Universiti Sains Malaysia, Malaysia

13:40-15:20 Room 1 (201A)

TH3.R1: Contribution of SAR Remote Sensing on the Great East Japan Earthquake

Chair: Motoyuki Sato (Tohoku University)

TH3.R1.1 The 2011 Tohoku Earthquake and 13:40 the Related Disasters Observed by InSAR Using ALOS/PALSAR: Mainshock, Induced Inland Earthquakes, and Liquefaction Tomokazu Kobayashi

Geospatial Information Authority of Japan, Japan

Detection of Crustal Movements TH3.R1.2 Due to the 11 April 2011 Fukushima 14:00 Earthquake from SAR Images

> Wen Liu¹, Fumio Yamazaki², Masashi Matsuoka¹, Takashi Nonaka³, Tadashi Sasagawa³

¹Interdisciplinary Graduate School of Science and Engineering, Tokyo Institute of Technology, Japan, ²Graduate School of Engineering, Chiba

University, Japan, ³Satellite Business Division, PASCO Corporation, Japan

Detection of Soil Liquefaction Areas TH3.R1.3 14:20 in the Kantou Region Using Multitemporal InSAR Coherence

Masayuki Tamura, Weiping Li Department of Civil and Earth Resources Engineering, Kyoto

University, Japan

TH3.R1.4 **Monitoring of Displacement on** 14:40 a Landslide Slope by GB-SAR Interferometry

Kazunori Takahashi¹,

Masayoshi Matsumoto², Motoyuki Sato¹ ¹Center for Northeast Asian Studies, Tohoku University, Japan, ²Graduate School of Environmental Studies, Tohoku University, Japan

Simplified Algorithm for Detecting TH3.R1.5 15:00 **Oriented Man-made Objects Using Correlation Coefficients in Circular**

Polarization Basis

Ryoichi Sato¹, Hanae Sano¹, Yoshio Yamaguchi², Hiroyoshi Yamada², Sang-Eun Park²

¹Faculty of Education, Niigata University, Japan, ²Graduate School of Science and Technology, Niigata University, Japan

13:40-15:20 Room 2 (201B)

TH3.R2: POL and POLInSAR

Co-chairs: Yoshio Yamaguchi (Niigata University),

Marco Lavalle (Jet Propulsion

Laboratory)

Unique Decomposition of a TH3.R2.1 13:40 **POLSAR Coherency Matrix Using a Generalized Scattering Model**

Shunichi Kusano¹, Kazunori Takahashi²,

Motovuki Sato²

¹Graduate School of Environmental Studies, Tohoku University, Japan, ²Center for Northeast Asian Studies,

Tohoku University, Japan

TH3.R2.2 **Experimental Study on Radar** 14:00 **Backscatterer from a Simplified Forest Model**

Takuma Watanabe¹, Hiroyoshi Yamada¹,

Motofumi Arii², Ryoichi Sato¹,

Sang-Eun Park¹, Yoshio Yamaguchi ¹ ¹Graduate School of Science and Technology, Niigata University, Japan, ²Mitsubishi Space Software Co., Ltd.,

Japan

TH3.R2.3 Maritime Application Using H-α 14:20 **Decomposition in Compact and Dual-**

Pol SAR

Lei Xie^{1,2}, Hong Zhang¹, Chao Wang¹, Fan Wu¹, Bo Zhang¹, Yixian Tang¹ ¹Key Laboratory of Digital Earth Science, Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences, China, ²University of Chinese Academy of Sciences, China

Reduction of Polarization Parameters TH3.R2.4 14:40 of Measured Coherency Matrix by **Unitary Transformations**

> Ning Cao, Lamei Zhang, Bin Zou School of Electronics and Information Technology, Harbin Institute of

Technology, China

TH3.R2.5 Fast Calculation of Adaptive-Non-15:00 **Negative-Eigenvalue-Decomposition Employing Particle Swarm**

Optimization

Toshifumi Moriyama Graduate School of Engineering, Nagasaki University, Japan

13:40–15:20 Room 3 (202A)

TH3.R3: SAR/GMTI/STAP and Change Detection Chair: Kei Suwa (Mitsubishi Electric Corporation)

TH3.R3.1 **Parameter Estimation in SAR** 13:40 **Imagery Using Stochastic Distances** Julia Cassetti¹, Juliana Gambini²,

Alejandro C. Frerv³

¹Instituto de Desarrollo Humano-Universidad Nacional de Gral. Sarmiento, Argentina, ²Depto. de Ingeniería Informática-Instituto Tecnológico de Buenos Aires, Argentina, ³LaCCAN – Laboratório de Computação Científica e Análise Numérica, Universidade Federal de Alagoas, Brazil

TH3.R3.2 An Experimental Study on Image 14:00 **Based Multi-Channel SAR-GMTI Algorithm**

> Kei Suwa¹, Kazuhiko Yamamoto¹, Masayoshi Tsuchida¹,

Toshio Wakayama¹, Shohei Nakamura²,

Jun Endo², Kei Hayashi²,

Hideki Hasegawa², Yosuke Nakano² ¹Mitsubishi Electric Corporation, Information Technology R & D Center, Japan, ²Mitsubishi Electric Corporation, Kamakura Works, Japan

TH3.R3.3 **Forest Clutter Suppression for** 14:20 **Moving Target Detection in UHF Dual Channel SAR**

Thomas K. Sjögren^{1,2}, Viet T. Vu². Mats I. Pettersson². Daniel Murdin³, Anders Gustavsson¹, Lars M.H. Ulander¹, Feng Wang ¹Sensor and Electronic Warfare Systems, Swedish Defence Research Agency (FOI), Sweden, ²Department of Electrical Engineering, Blekinge Institute of Technology (BTH), Sweden, ³Research and Development, Nira Dynamics, Sweden

TH3.R3.4 Slightly Moved Vehicle Detection 14:40 with Coherent Change Detection on X-band High Resolution SAR Imagery

> Takehiro Hoshino, Kei Suwa, Noboru Oishi, Toshio Wakayama Mitsubishi Electric Corporation, Information Technology R&D Center, Japan

Evaluation of the Ship Detection TH3.R3.5 by Dual Polarimetric Along-Track 15:00 Interferometry

Shoichiro Kojima

Applied Electromagnefic Research Center, National Institute of Information and Communications Technology, Japan

13:40-15:20 Room 4 (202B)

TH3.R4: Advanced Information Extraction Techniques Chair: Sang-Eun Park (Niigata University)

TH3.R4.1 **PolSAR Land Classification by Using** 13:40 **Quaternion-Valued Neural Networks** Fang Shang, Akira Hirose Department of Electrical Engineering

and Information Systems, The University of Tokyo, Japan

TH3.R4.2 **New Method for Symmetric Target** 14:00 Scattering Characterization in **Polarimetric SAR Images**

Junjun Yin, Jian Yang

Department of Electronic Engineering, Tsinghua University, China

TH3.R4.3 **Efficient Automatic Target** 14:20 **Recognition Method for Aircraft** SAR Image Using Supervised SOM Clustering

> Shouhei Ohno, Shouhei Kidera, Tetsuo Kirimoto

Graduate School of Informatics and Engineering, University of Electro-Communications, Japan

TH3.R4.4 Sparse Imaging Using Modified 2-D Matrix Pencil Method in FD-MIMO 14:40 Radar

> Tianyun Wang¹, Changchang Liu¹, Weidong Chen¹, Zhiqiang Song², Jing Jiang² ¹Department of EEIS, University of

Science and Technology of China, China, ²China Satellite Maritime Tracking and Controlling Department, China

TH3.R4.5 **Contrast Measures Based on the Complex Correlation Coefficient for** 15:00 **PolSAR Imagery**

Alejandro C. Frery¹, Renato J. Cintra², Abraão D. C. Nascimento³ ¹LaCCAN – Laboratório de Computação Científica e Análise Numérica, Universidade Federal de Alagoas, Brazil, ²Departamento de Estatística, Universidade Federal de Pernambuco, Brazil, ³Departamento de Estatística, Universidade Federal de Paraíba. Brazil

Registration Information

	Category	On-site Rate after June 29, 2013
	IEEE or IEICE Member *)	JPY 50,000
Conformed registration	Non-member	JPY 60,000
Conference registration	IEEE or IEICE Student Member **)	JPY 30,000
	Student Non-member * *)	JPY 35,000

All payments must be made in Japanese Yen.

Registration Fee includes

One program book, proceedings in a USB, traditional social events as well as refreshments during conference breaks.

Additional Cost for Multiple-Paper Presentation

If a presenter is going to present "2 or more" papers, he/she should pay additional cost of JPY10,000.- per paper for the second and after.

Registration Desk and Hours

Registration desk will open on the 1st Floor during the following hours:

 September 23 (Monday):
 13:00-17:30

 September 24 (Tuesday):
 8:00-17:30

 September 25 (Wednesday):
 8:00-17:30

 September 26 (Thursday):
 8:00-15:00

Any inquiries concerning registration should be addressed to:

Registration Office of APSAR2013 c/o ICS Convention Design, Inc. Chiyoda Bldg., 1-5-18 Sarugaku-cho Chiyoda-ku, Tokyo 101-8449, Japan

Phone: +81-3-3219-3600 Fax: +81-3-3219-3577

E-mail: apsar2013_reg@ics-inc.co.jp

^{*}Members of concerned academic societies (IEEE and IEICE) are required to show their membership ID card at registration desk on-site.

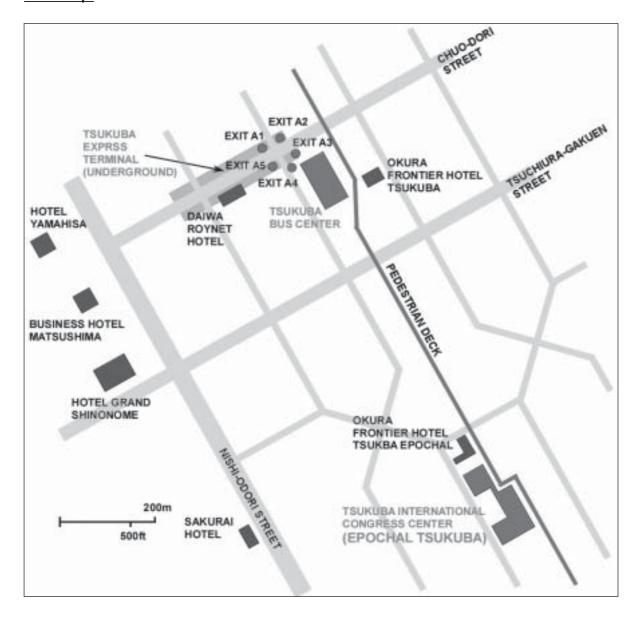
^{**}Students are required to their student ID card at registration desk on-site.

Venue & Access

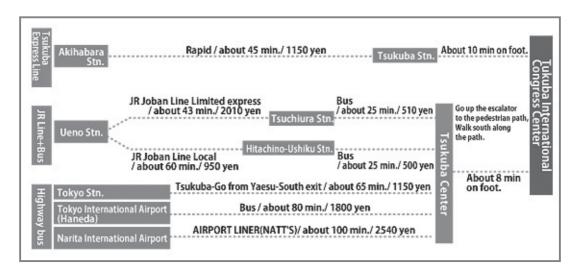
Tsukuba International Congress Center (Epochal Tsukuba)

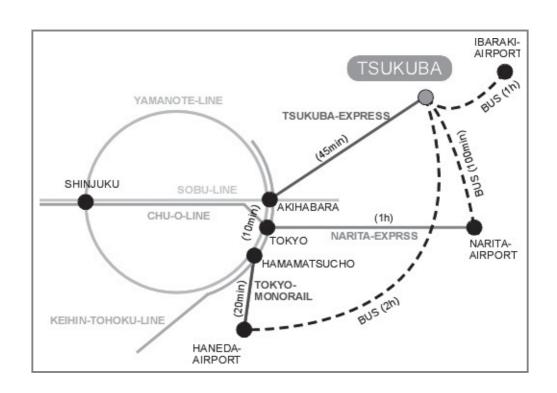
2-20-3, Takezono, Tsukuba, Ibaraki, 305-0032, Japan

Area Map



Transportation Information





Social Events

Welcome Reception

Date & Time Sep. 23 (Mon) 18:00-20:00 Place Restaurant ESPOIR

(1st Floor, Tsukuba International Congress Center)

Banquet

Date & Time Sep. 25 (Wed) 18:00-20:30

Place Conference Room 101&102 (1st Floor)

Entertainment: Kagami-Biraki & Wa-Daiko

Kagami Biraki is a Japanese traditional ceremony which literally translates to "Opening

the Mirror". It refers to the opening of a cask of Sake at a party or ceremony.

Taiko means "drum" in Japanese (etymologically "great" or "wide drum"). Outside Japan, the word is often used to refer to any of the various Japanese drums, ("wa-daiko", "Japanese drum", in Japanese). Japanese taiko drums have been developed into a wide range of percussion instruments that are used in both Japanese folk and classical

musical traditions.

Technical Tours

OP-1: JAXA Tsukuba Space Center & Tsukuba Tour

Date Sep. 27 (Fri.)

Fare JPY10,500 per person

Course EPOCHAL TSUKUBA 9:00 = JAXA Tsukuba Space Center = Lunch = TSUKUBASAN

Cable Car & Ropeway = Inaba Sake Brewery = 19:15 EPOCHAL TSUKUBA

Guide English-speaking guide service is included

Meals 1 Lunch Transportation Bus

*) Minimum number of participants necessary for the tour 30 persons

*) JAXA Tsukuba Space Center << Your ID (e.g., passport) is required for participation>>

OP-2: JAXA Tsukuba Space Center [Half Day Tour]

Date Sep. 27 (Fri.)

Fare JPY3,500 per person.

Course EPOCHAL TSUKUBA 9:00 = JAXA Tsukuba Space Center = 12:00 Tsukuba Station.

Guide English-speaking guide service is available only at JAXA.

Meals No meal Transportation Bus

*) Minimum number of participants necessary for the tour 25 persons

*) JAXA Tsukuba Space Center <<Your ID (e.g., passport) is required for participation>>

OP-3: ASAKUSA, Tokyo 1 Day Tour

Date Sep. 27 (Fri.)

Fare JPY10,500 per person

Course EPOCHAL TSUKUBA 9:00 = Brand New Sightseeing Spots = Lunch = ASAKUSA

(Senso-ji, Nakamise-Dori) = Edo-Tokyo Museum = 19:15 EPOCHAL TSUKUBA

Guide English-speaking guide service is included

Meals 1 Lunch Transportation Bus

*) Minimum number of participants necessary for the tour 30 persons

JTB Global Marketing & Travel Inc. (JTB GMT), appointed the official travel agent for APSAR 2013, will handle and operate the tours. Online application form will be available in May 2013. For further details, please visit http://www.apsar2013.org/tour.html .

INQUIRY DESK:

JTB Global Marketing & Travel Inc., Convention Center (CD100720-618)

2-3-11 Higashi-Shinagawa, Shinagawa-ku, Tokyo 140-8604, Japan

Phone: +81-3-5796-5445 E-mail: apsar2013@gmt.jtb.jp

General Information

Weather

The average highest temperature in a day in Tsukuba is around 26 °C and the lowest is around 18 °C in September.

Lunch

The detail is announced on site.

Electricity

Electric power supply is 100V/50Hz in Eastern Japan including Tsukuba and Tokyo. Japanese power outlets are physically identical to 2-flat-pin North American outlets (Type A). Some North American devices will work fine in Japan without plug adapter, however, some sensitive devices may not work properly or even get damaged. (Photo: Japanese 2-flat-pin plug (Type A))



Language

Official language of this conference is English.

Internet Connection

Wireless LAN can be used in the Multi-Purpose Hall.

Currency and credit card

Only Japanese Yen is available. The recent exchange rate is about 1 USD for 100 Yen.

Most hotels, large restaurants and shops will accept international credit cards, the most widely recognized being American Express, MasterCard and Visa.

Time Difference

GMT+9 / No daylight savings time

Business Hours

Government office hours are from 09:00 AM to 05:00 PM from Monday through Friday.

Banking business hours, however, are from 09:00 AM to 03:00 PM on weekdays, and close on weekends.

Tipping

Tipping is not necessary in Japan.

Tour Information

Tsukuba Science City, located about 50 km northeast of Tokyo, is home to around 30% of Japan's public research institutions as well as many private research institutes in the surrounding R & D oriented industrial parks. Via the Tsukuba Express Line from Akihabara Station in Tokyo, Tsukuba Science City is about a one-hour trip from Central Tokyo. There are a variety of unique sightseeing spots in Tsukuba Science City:

Mt. Tsukuba (http://www.jnto.go.jp/eng/location/regional/ibaraki/tukuba.html)

You can see and enjoy a panoramic view of the Kanto Plain from the summit and one of the most historic shrines in Japan, Tsukuba-san Shrine. The summit of the mountain can be reached easily by cable car or ropeway.

Tsukuba EXPO Center (http://www.expocenter.or.jp/?page_id=41)

A science museum with the world-largest-class planetarium located at the center of Tsukuba, and there visitors can experience the frontier of technology and science.

University of Tsukuba (http://www.tsukuba.ac.jp/english/)

One of the Japan's oldest and best respected universities with over 130 years history. The University is also well known to have produced three Nobel Prize winning scientists.

The Science Museum of Map and Survey (http://www.gsi.go.jp/ENGLISH/)

Tsukuba Botanical Garden (http://www.tbg.kahaku.go.jp/english/)

JAXA Tsukuba Space Center (http://www.jaxa.jp/index_e.html)

Science Square Tsukuba (http://www.aist.go.jp/aist_e/sst/)

Geological museum (https://www.gsj.jp/Muse/eng/)



View from the summit of Mt. Tsukuba



JAXA Tsukuba Space Center

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Kankaku, Y.	WE1.R1.1	Li, Chunsheng	WE4.P C.1	Moriyama, Toshifumi	TH3.R2.5
Kato, Akira	TU2.R3.4	Li, Chunsheng	WE4.P D.1	Morrison, Keith	WE3.R3.1
Kawano, Isao	WE1.R1.3	Li, Chunsheng	WE4.P D.7	Motohka, Takeshi	TU2.R3.1
Kawano, Noriyuki	WE2.R1.3	Li, Chunsheng	WE4.P E.3	Motohka, Takeshi	WE1.R1.5
Kawano, Noriyuki	WE2.R1.4	Li, Chunsheng	WE4.P F.2	Motohka, Takeshi	WE2.R1.3
Kawano, Noriyuki	TH2.R1.4	Li, Chunsheng	TH2.R4.4	Motooka, Takeshi	WE2.R1.4
	WE4.P C.3		WE4.P D.6		WE4.P C.6
Kawatani, Yoshifumi		Li, Jingwen		Muhuri, Arnab	
Kern, Andreas	TU1.R1.4	Li, Jingwen	TH1.R3.3	Murata, Minoru	TH2.R2.4
Kidera, Shouhei	TU1.R4.2	Li, Weiping	TH3.R1.3	Murdin, Daniel	TH3.R3.3
Kidera, Shouhei	TU1.R4.3	Li, Yin-wei	TH1.R3.4	Myasoedov, Alexander	TH1.R2.1
Kidera, Shouhei	TH3.R4.3	Li, Yongli	WE4.P E.4		
Kim, Duk-jin	WE1.R3.4	Li, Yufeng	WE4.P D.9	N	
Kim, J. E.	TH1.R3.1	Li, Zenghui	WE4.P D.2		
Kim, J. E. Kim, JaeMyeong	TH1.R3.1 WE4.P A.3	Li, Zenghui Li, Zhou	WE4.P D.2 WE4.P C.1	Nadai, Akitsugu	TU2.R1.1
Kim, JaeMyeong		Li, Zhou			TU2.R1.1 TH1.R1.3
Kim, JaeMyeong Kim, Jung Rack	WE4.P A.3	Li, Zhou Liang, Jianjuan	WE4.P C.1	Nadai, Akitsugu	TH1.R1.3
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack	WE4.P A.3 WE4.P A.3 WE4.P B.4	Li, Zhou Liang, Jianjuan Lin, Peng	WE4.P C.1 WE4.P C.4 WE4.P F.2	Nadai, Akitsugu Nadai, Akitsugu	TH1.R1.3 TH2.R1.5
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo	WE4.P A.3 WE4.P B.4 TU1.R1.5	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi	TH1.R1.3 TH2.R1.5 TH2.R2.4
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B.	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S.	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Tsunekazu	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Tsunekazu	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 WE3.R1.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 WE3.R1.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo Kirimoto, Tetsuo	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Lu	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D.	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo Kirimoto, Tetsuo	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TH3.R4.3	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TH3.R4.3 TU1.R2.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N.	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu	WE4.P A.3 WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TU1.R4.3 TU1.R2.1 TU2.R3.3	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen Liu, Yue	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, T	WE4.P A.3 WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TU1.R4.3 TU1.R2.1 TU2.R3.3 TU2.R3.2	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen Liu, Yue Liu, Yujing	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R1.4
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kinoshita, Youhei Kirimoto, Tetsuo Kirimoto, Tetsuo Kirimoto, Tetsuo Kitta, H. Kobayashi, H. Kobayashi, Shoko Kobayashi, Tatsuharu	WE4.P A.3 WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TH3.R4.3 TU1.R2.1 TU2.R3.3 TU2.R3.2 TU2.R3.2 TU2.R3.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen Liu, Yue Liu, Yujing Lu, Da	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE1.R3.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1 TU2.R2.4	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi Nishimoto, Masahiko	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R4.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo Kirimoto, Tetsuo Kirimoto, Tetsuo Kirimoto, Tetsuo Kirimoto, Tetsuo Kirta, H. Kobayashi, H. Kobayashi, Shoko Kobayashi, Tatsuharu Kobayashi, Tatsuharu	WE4.P A.3 WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TU1.R4.3 TU1.R4.3 TU2.R3.3 TU2.R3.3 TU2.R3.2 TU2.R3.2	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen Liu, Yue Liu, Yujing Lu, Da Lu, Hongchao	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1 TU2.R2.4 WE4.P F.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi Nishimoto, Masahiko Nishimura, Takeshi	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R1.4 TU2.R4.2 WE4.P C.3
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo Kirimoto, Tetsuo Kirimoto, Tetsuo Kirimoto, Tetsuo Kitta, H. Kobayashi, H. Kobayashi, Shoko Kobayashi, Tatsuharu Kobayashi, Tatsuharu	WE4.P A.3 WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TU1.R4.3 TU1.R4.3 TU2.R3.3 TU2.R3.3 TU2.R3.3 TU2.R3.2 TU2.R3.1 WE2.R3.2 TH1.R1.3	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen Liu, Yue Liu, Yujing Lu, Da Lu, Hongchao Lu, Hongchao Lu, Yongchun	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1 TU2.R2.4 WE4.P F.3 WE4.P S.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi Nishimoto, Masahiko Nishimura, Takeshi Nonaka, Takashi	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R1.4 TU2.R4.2 WE4.P C.3 TH1.R1.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-hyo Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo	WE4.P A.3 WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TH3.R4.3 TU1.R2.1 TU2.R3.3 TU2.R3.2 TU2.R1.1 WE2.R3.2 TH1.R1.3 TH2.R1.5	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen Liu, Yue Liu, Yujing Lu, Da Lu, Hongchao	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1 TU2.R2.4 WE4.P F.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi Nishimoto, Masahiko Nishimura, Takeshi Nonaka, Takashi	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R1.4 TU2.R4.2 WE4.P C.3 TH1.R1.2 TH3.R1.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-Rack Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo	WE4.P A.3 WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TH3.R4.3 TU1.R2.1 TU2.R3.3 TU2.R3.2 TU2.R1.1 WE2.R3.2 TH1.R1.3 TH2.R1.5 TH3.R1.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Wen Liu, Wen Liu, Yujing Lu, Da Lu, Hongchao Lu, Yongchun Luo, Yunhua	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1 TU2.R2.4 WE4.P F.3 WE4.P S.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi Nishimoto, Masahiko Nishimura, Takeshi Nonaka, Takashi Nonaka, Takashi	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R1.4 TU2.R4.2 WE4.P C.3 TH1.R1.2 TH3.R1.2 TH3.R1.2 TH3.R1.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-Rack Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo Kirimo	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TU1.R4.3 TU1.R2.1 TU2.R3.3 TU2.R3.2 TU2.R1.1 WE2.R3.2 TH1.R1.3 TH2.R1.5 TH3.R1.1 WE3.R2.4	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Dehong Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen Liu, Yue Liu, Yujing Lu, Da Lu, Hongchao Lu, Hongchao Lu, Yongchun	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1 TU2.R2.4 WE4.P F.3 WE4.P S.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi Nishimoto, Masahiko Nishimura, Takeshi Nonaka, Takashi Nonaka, Takashi Nonomura, Atsuko Novali, Fabrizio	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R4.2 WE4.P C.3 TH1.R1.2 TH3.R1.2 TH3.R1.2 TH3.R1.2 TH2.R2.1 WE4.P C.2
Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-Rack Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo Kirimo	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TU1.R4.3 TU2.R3.3 TU2.R3.2 TU2.R3.1 WE2.R3.2 TU2.R3.1 WE2.R3.2 TU2.R3.1 WE2.R3.2 TU3.R3.1 WE3.R3.2 TH1.R1.3 TH2.R1.5 TH3.R1.1 WE3.R2.4 TH1.R1.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Hai Liu, Wen Liu, Yue Liu, Yue Liu, Yujing Lu, Da Lu, Hongchao Lu, Yongchun Luo, Yunhua	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1 TU2.R2.4 WE4.P F.3 WE4.P F.3 WE4.P F.3 WE4.P F.3	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, S. Nakamura, Shohei Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi Nishimoto, Masahiko Nishimura, Takeshi Nonaka, Takashi Nonaka, Takashi Nonomura, Atsuko Novali, Fabrizio Nowa, Yukinori	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R4.2 TU2.R4.2 TU2.R4.2 TU2.R4.2 TU2.R4.2 TU3.R4.2 TU4.R1.4 TU4.R4.2 TU4.R4.1 TU4.R4.2 TH4.R1.2 TH4.R1.2 TH4.R1.2 TH4.R2.1 WE4.P C.2 TH4.R1.4
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Kim, JaeMyeong Kim, Jung Rack Kim, Jung Rack Kim, Jung-Rack Kim, Jung-Rack Kim, S. B. Kim, Seung Hee Kim, Young-Soo Kimura, Hiroshi Kimura, Hiroshi Kimura, Tsunekazu Kimura, Tsunekazu Kimura, Tsunekazu Kimoshita, Youhei Kirimoto, Tetsuo Kirimot	WE4.P A.3 WE4.P B.4 TU1.R1.5 WE1.R3.2 TH1.R3.1 WE1.R3.4 TH1.R3.1 WE2.R1.2 TH2.R3.1 WE2.R3.2 WE4.P F.1 TH2.R2.4 WE1.R3.3 TU1.R4.2 TU1.R4.3 TH3.R4.3 TU1.R2.1 TU2.R3.3 TU2.R3.2 TU2.R3.1 WE2.R3.2 TH1.R1.3 TH2.R1.5 TH3.R1.1 WE3.R2.4 TH1.R1.1 TU2.R1.1 TU2.R1.1	Li, Zhou Liang, Jianjuan Lin, Peng Lin, Shih-Yuan Lin, Shih-Yuan Ling, Fan Liu, Bo Liu, Changchang Liu, Changchang Liu, Changchang Liu, Changchang Liu, Gang Liu, Hai Liu, Hai Liu, Hai Liu, Hai Liu, Lu Liu, Nai-Chen Liu, Wen Liu, Yue Liu, Yujing Lu, Da Lu, Hongchao Lu, Yongchun Luo, Yunhua M Maeda, Korehiro Manavalan, R. Mase, Atsushi	WE4.P C.1 WE4.P C.4 WE4.P F.2 WE4.P A.3 WE4.P B.10 TU1.R4.4 WE1.R2.2 WE4.P F.3 TH3.R4.4 TH2.R4.2 WE4.P B.2 TU2.R4.4 WE4.P C.7 WE4.P D.4 WE2.R3.3 WE3.R2.5 TH3.R1.2 TH1.R3.2 WE4.P D.1 TU2.R2.4 WE4.P F.3 WE4.P D.1 WE4.P F.3 WE4.P F.3 WE4.P F.3 WE4.P F.3 WE4.P F.3 WE4.P E.4	Nadai, Akitsugu Nadai, Akitsugu Nagata, Hidefumi Nakajima, Ken Nakamura, Kazuki Nakamura, Kazuki Nakamura, Shohei Nakamura, Shohei Nakamura, Shohei Nakamura, Yasuyuki Nakano, Kazushi Nakano, Yosuke Nakano, Yosuke Nakasuka, Shinichi Nascimento, Abraão D. Natsuaki, Ryo Nehru, Dheeraj N. Nguyen, Minh Phuong Nishijo, Kunitoshi Nishimoto, Masahiko Nishimura, Takeshi Nonaka, Takashi Nonaka, Takashi Nonomura, Atsuko Novali, Fabrizio Nowa, Yukinori Nugroho, Arifin	TH1.R1.3 TH2.R1.5 TH2.R2.4 WE1.R1.3 TU1.R3.4 WE2.R1.5 WE1.R1.1 WE3.R1.2 TH3.R3.2 TU2.R4.3 TU2.R4.3 WE3.R1.2 TH3.R3.2 WE1.R2.3 C. TH3.R4.5 WE2.R3.1 WE4.P E.7 WE2.R2.1 TU2.R4.2 TU2.R4.2 TU2.R4.2 TU2.R4.2 TU2.R4.2 TU3.R4.2 TU4.R1.4 TU4.R4.2 TU4.R4.1 TU4.R4.2 TH4.R1.2 TH4.R1.2 TH4.R1.2 TH4.R2.1 WE4.P C.2 TH4.R1.4
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Oh, Yisok	TU1.R3.1	Sato, Motoyuki	TU2.R4.1	Tadono, Takeo	TH2.R2.1
Ohki, Masato	WE2.R1.4 TH2.R2.2	Sato, Motoyuki Sato, Motoyuki	TU2.R4.4	Takahashi, Kazunori	TU2.R4.1
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Ohno, Shouhei	TH3.R4.3	Sato, Motoyuki	TH2.R4.3	Takahashi, Kazunori	TH3.R1.4
Ohtani, Takashi	TU2.R1.4	Sato, Motoyuki	TH3.R1.4	Tamura, Masayuki	TH3.R1.3
Oihara, Isamu	WE4.P F.1	Sato, Motoyuki	TH3.R2.1	Tan, Weixian	WE4.P E.2
Oishi, Noboru	TH3.R3.4	Sato, Ryoichi	TU2.R2.1	Tanaka, Akiko	WE1.R3.1
Okada, Y.	TU2.R1.2	Sato, Ryoichi	TH3.R1.5	Tang, Tao	WE4.P D.4
Okada, Y.	WE1.R1.1	Sato, Ryoichi	TH3.R2.2	Tang, Yixian	WE4.P B.5
Okamura, Saika	TU2.R4.1	Sawada, Kazuhide	TH2.R1.3	Tang, Yixian	TH1.R2.3
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Oshiyama, Gen	WE3.R3.2	Shang, Fang	TH3.R4.1	Thapa, Rajesh Bahadur	WE2.R1.3
Oura, Yoshitaka	TH2.R2.4	Shao, Huaizong	WE4.P E.1	Tien-Sze, Lim	TH2.R4.5
Ozawa, Taku	WE2.R1.1	Shao, YunFeng	WE4.P B.2	Tomiki, Atsushi	TU2.R1.4
		Shibuya, Kazuo	WE2.R1.5	Touzi, R.	TU1.R3.3
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		Shimada, Masanobu	TU2.R3.1	Tozuka, Hideharu	WE4.P F.1
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Paek, Inchan	WE2.R2.4	Shimada, Masanobu	WE1.R1.5	Trampuz, Christian	WE4.P E.6
Palacio, Gabriela Papathanassiou, Konstantinos	WE4.P B.3 TU1.R1.1	Shimada, Masanobu Shimada, Masanobu	WE1.R3.3 WE2.R1.3	Tsai, Tung-Hung Tsuchida, Masayoshi	WE3.R2.5 WE1.R2.1
Park, HoJoon	WE4.P A.3	Shimada, Masanobu	WE2.R1.3 WE2.R1.4	Tsuchida, Masayoshi	WE3.R1.2
Park, Sang Eun	TU2.R2.1	Shimada, Masanobu	TH2.R1.4	Tsuchida, Masayoshi	TH3.R3.2
Park, Sang-Eun	TU1.R2.3	Shimada, Masanobu	TH2.R2.2	Tsuji, M.	TU2.R1.2
Park, Sang-Eun	WE4.P C.8	Shimizu, Takeshi	TH2.R1.4	Tsuji, M.	WE1.R1.1
Park, Sang-Eun	TH3.R1.5	Shindo, Yoshikuni	WE4.P C.3	Turkar, Varsha	TH2.R2.3
Park, Sang-Eun	TH3.R2.2	Shiraishi, Tomohiro	TU2.R3.1		
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Peternier, Achille Petersen, Lars	WE3.R3.4 TU1.R1.4	Singh, G. Singh, Gulab	TU1.R2.2 TU1.R2.3	Uchikado, Tomohiro Uemoto, Jyunpei	TU2.R4.3 TU2.R1.1
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Ponnurangam, G. G.	TH2.R2.3	Song, Hongjun	WE4.P E.4	Umehara, Toshihiko	TH1.R1.3
Porikli, Fatih	TH1.R3.5	Song, Zhiqiang	TH3.R4.4	Umehara, Toshihiko	TH2.R1.5
Pu, Na	WE4.P D.1	Soni, Akshay Soo, Choi Yun	TH1.R3.5 WE4.P B.4	Uratsuka, Seiho Uratsuka, Seiho	TU2.R1.1 TH1.R1.3
R		Souma, Ryunosuke	TU1.R4.2	Uratsuka, Seiho	TH2.R1.5
		Stern, Ben	TU2.R1.3		
Rao, Y. S.	TH2.R2.3	Su, Caixia	WE4.P C.4	V	
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Ren, Junying	WE4.P C.4	Subrata, Chattopadhyay	WE3.R2.3	Vachon, P.W.	TU2.R2.5
Rheem, Chang-Kyu	TH1.R2.2	Sumantyo, Josaphat Tetuko Sri	TU1.R2.4	Venkataraman, G.	TU1.R2.2
Riccardi, Paolo	WE4.P A.5	Sumantyo, Josaphat Tetuko Sri	TU1.R2.5	Venkataraman, G.	WE3.R2.3
Roedelsperger, Sabine Rosso, Osvaldo A.	WE4.P E.6 TU2.R2.3	Sumantyo, Josaphat Tetuko Sri Sun, Guang-Cai	TH2.R4.5 WE2.R2.2	Venkataraman, Gopalan Vicente, Daniel	WE4.P C.6 WE4.P E.6
Nosso, Osvaldo A.	102.112.0	Sun, Guang-Cai	WE4.P D.3	Vitulli, Raffaele	WE3.R3.4
S		Surendar, M.	TU1.R2.2	Voon-Chet, Koo	TH2.R4.5
		Suwa, Kei	WE1.R2.1	Vu, Viet	TH2.R3.2
Saito, Genya	WE4.P A.1	Suwa, Kei	WE3.R1.2	Vu, Viet T.	WE4.P E.7
Saito, Hirobumi	TU2.R1.4	Suwa, Kei	TH1.R3.5	Vu, Viet T.	TH3.R3.3
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Satake, Makoto	TU2.R1.1			Wakayama, Toshio	WE3.R1.2
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Wang, Chao	WE4.P B.10	Yamada, H.	TU1.R2.1	Zaugg, Evan C.	WE3.R1.1
Wang, Chao	TH1.R2.3	Yamada, Hiroyoshi	TU2.R2.1	Zeng, Hongcheng	TH1.R3.3
Wang, Chao	TH3.R2.3	Yamada, Hiroyoshi	WE4.P C.5	Zhang, Bo	WE4.P B.5
Wang, Dongjin	TU1.R4.4	Yamada, Hiroyoshi	WE4.P C.8	Zhang, Bo	TH1.R2.3
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Wang, Robert	WE2.R2.3	Yamada, Hiroyoshi	TH3.R2.2	Zhang, Hairong	WE4.P D.6
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Wang, Robert Wang, Tianyun	TH1.R3.2 WE1.R2.2	Yamaguchi, Yoshio Yamaguchi, Yoshio	WE4.P C.3 WE4.P C.8	Zhang, Hong	TH1.R2.3
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Wang, Tianyun	TH3.R4.4	Yamaguchi, Yoshio	TH3.R2.2	Zhang, Lamei	TU2.R2.4
Wang, Wen-Qin	WE4.P E.1	Yamamoto, Kazuhiko	WE1.R2.1	Zhang, Lamei	TH3.R2.4
Wang, Yan	WE4.P C.1	Yamamoto, Kazuhiko	WE3.R1.2	Zhang, Siqian	WE4.P C.7
Wang, Yan	WE4.P D.6	Yamamoto, Kazuhiko	TH3.R3.2	Zhang, Yingjie	WE4.P E.2
Wang, Yan	WE4.P D.7	Yamamoto, Kazutomo	WE4.P C.8	Zhang, Zhimin	TH1.R3.2
Wang, Yan	WE4.P E.3	Yamamoto, Masayuki	WE1.R1.3	Zhao, Fengjun	WE4.P D.5
Wang, Yanping	WE4.P E.2	Yamamoto, Toru	WE1.R1.3	Zhao, Fengjun	TH1.R3.2
Wang, Yan-ping	TH1.R3.4	Yamamoto, Yoshiyuki	WE4.P B.9	Zhao, Lingjun	WE4.P C.7
Wang, Zhiqian	WE4.P E.3	Yamanokuchi, Tsutomu	WE2.R1.5	Zhao, Long	WE4.P B.10
Wang, Ziwei	TH1.R2.3	Yamaoka, Tomoya	WE1.R2.1	Zhen, Fengyuan	WE4.P B.6
Watanabe, Manabu	TU2.R3.1	Yamaoka, Tomoya	WE3.R1.2	Zheng, Shichao	WE4.P D.5
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Watanabe, Manabu	WE1.R1.5	Yamazaki, Fumio	TH3.R1.2	Zink, M.	TU1.R1.2
Watanabe, Manabu	WE2.R1.3	Yang, ChanSu	TU1.R3.4	Zou, Bin	TU2.R2.4
Watanabe, Manabu	WE2.R1.4	Yang, Hee J.	TU2.R4.5	Zou, Bin	TH3.R2.4
Watanabe, Manabu	WE4.P A.1	Yang, Jian	WE4.P D.2		
Watanabe, Manabu	TH2.R1.4	Yang, Jian	TH3.R4.2		
Watanabe, Masato Watanabe, T.	TU1.R4.1 TU1.R2.1	Yang, Ru-Muh Yang, Wei	WE3.R2.5 TH1.R3.3		
Watanabe, Takuma	WE4.P C.5	Yang, Wei	TH2.R4.4		
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Woo, J. C.	TH1.R3.1	Yee-Kit, Chan	TH2.R4.5		
Wu, Bor-Han	WE3.R2.5	Yeh, Ming-Yuan	WE3.R2.5		
Wu, Fan	WE4.P B.5	Yi, Cui	TU2.R2.1		
Wu, Fan	TH1.R2.3	Yin, Junjun	WE4.P D.2		
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Xiang, Mao-sheng	TH1.R3.4	Yoshida, Takero	TH1.R2.2		
Xiao, Dengjun	WE4.P B.2	Yu, Shiann-Jeng	WE3.R2.5		
Xiao, Peng	WE4.P D.7	Yu, Ze	WE4.P C.1		
Xiaolin, Yang	WE4.P A.2	Yu, Ze	WE4.P D.1		
Xie, Lei	TH3.R2.3	Yu, Ze	WE4.P D.7		
Xing, Meng-dao	WE2.R2.2	Yu, Ze	WE4.P D.9		
Xing, Meng-Dao	WE4.P D.3	Yu, Ze	WE4.P E.3		
Xu, Wei	WE2.R2.3	Yu, Ze	WE4.P F.2		
Xu, Wei Xu, Wei	WE4.P B.2 WE4.P D.5	Yun, Hye Won Yun, Hyewon	WE4.P B.4 WE4.P A.3		
Xu, Vvei Xu, Zheng	WE4.P D.5 WE4.P E.4	iuii, i iyewoii	VVLT.1 A.J		
Au, Librig	**L7.1 L.7				