

Final Program



EUSAR 2006

6th European Conference on Synthetic Aperture Radar



■ 16 – 18 May 2006

■ Congress Center, Dresden, Germany

Organized by
ITG/VDE



FGAN



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Welcome from the Conference Chairman



Welcome to the 6th EUSAR conference in Dresden! This year we are commemorating the 10th anniversary of EUSAR. Since the first conference in Königswinter in 1996, EUSAR has evolved to become a well-established international conference dedicated to SAR techniques, technology and applications. It has accompanied the worldwide evolution of high resolution imaging radar, both airborne and spaceborne, and has helped to establish an international community

of SAR engineers and scientists. As in previous years, EUSAR will provide a forum for exchanging information and discussion on a wide variety of SAR topics, representing the latest SAR developments. EUSAR 2006 will certainly be a unique conference for all colleagues involved in the field of synthetic aperture radar.

We are entering a very dynamic and challenging time for SAR development with the recent start of ALOS/PALSAR and a number of spaceborne systems to be launched soon: TerraSAR-X, SAR-Lupe, RADARSAT-2, COSMO Skymed, TECSAR and several others. SAR systems are today an indispensable data source for high resolution 2D and 3D mapping, environmental and disaster monitoring as well as security related applications. Information extraction has achieved a mature and operational level in a number of different fields, making the contributions of SAR systems to present and future programs like GMES and GEOSS a very essential one.

In order to provide an outstanding technical level for the presentations at the conference, we have invited about 85 experts in the SAR field to participate in the Technical Program Committee. We will have 49 sessions in 3 days of conference, including 22 invited sessions, full-day tutorials on topical themes on 15th May 2006, an industrial exhibition showing the latest technological and technical developments in this field as well as the Awards presentation during the closing session at the last day of the conference. A special event program will be organized following the tradition of the previous EUSAR conferences. This year we will also have a four-hand piano concert by Dr. Richard Klemm together with a special guest from Brazil.

The conference site is the International Congress Center, one of the most modern and most beautiful congress centers in Europe. It is situated directly on the banks of the river Elbe in the heart of the historical city amongst all the popular sights and points of interest. Take your time to visit the city of Dresden, which is celebrating its 800th jubilee year in 2006.

I am looking forward to meeting you in Dresden during EUSAR 2006 and to sharing a most pleasant, interesting and fruitful conference.

Alberto Moreira
General Chairman
 EUSAR 2006

Message from the Program Chairman



On behalf of the program board I would like to welcome you to the EUSAR 2006 conference.

Due to the overwhelming response to our call for papers, we are certain that EUSAR 2006 will prove to be an outstanding success and a representative forum for scientific research in SAR related topics. We received 465 abstracts from 34 countries all over the world. These abstracts were reviewed by the program committee consisting of more than 84 respected international scientists. 250 papers were selected for oral presentation and 182 papers for interactive poster presentation making this the largest EUSAR conference yet with five parallel sessions. To our great satisfaction, all important fields of SAR techniques, technology and exploitation are covered by the contributions.

EUSAR 2006 starts with a plenary session with keynote speeches by prominent personalities. During the three conference days, the oral sessions will be held in five halls in parallel. We tried to arrange the parallel sessions in such a way that the overlap of the topics is minimised. Special attention has been given to the poster session presentations, which are planned for the Wednesday evening in conjunction with a reception. Also, a commercial exhibition will be hosted during the conference showing the latest industrial developments in SAR systems and applications. Following our tradition, a piano recital will be held on the first evening followed by a visit to a local hostelry.

All papers will be included in the EUSAR conference proceedings and on compact disk.

I would like to express my thanks to all the contributors and speakers and in particular to the members of the program board for their competent evaluation of the large number of submissions.

I am looking forward to seeing you in Dresden.

David Hounam
DLR, Germany

Conference Board

Technical Board

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Kwag Young	Hankuk Aviation University
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Rudolf Zahn	EADS
Minhui Zhu	Chinese Acadademy of Science
Manfred Zink	DLR

CONFERENCE EVENTS - OVERVIEW

Monday, May 15, 2006

08:00-17:30 Registration
 09:00-17:30 Tutorials

Tuesday, May 16, 2006

08:00-17:40 Registration
 09:00-18:00 Industrial Exhibition/Poster Display

 09:00-09:30 Welcome and Opening of the Conference
 09:00-10:30 Plenary Session
 11:00-12:20 Oral Sessions
 12:20-13:50 Lunch
 13:50-15:30 Oral Sessions
 15:30-16:00 Coffee Break
 16:00-17:40 Oral Sessions
 18:00-19:00 Piano Concert (Grosser Saal)
 20:00-22:00 Conference Dinner (Pulverturm Restaurant)

Wednesday, May 17, 2006

08:00-18:20 Registration
 09:00-22:00 Industrial Exhibition/Poster Display

 08:30-10:10 Oral Sessions
 10:10-10:40 Coffee Break
 10:40-12:20 Oral Sessions
 12:20-13:50 Lunch
 13:50-16:10 Oral Sessions
 16:10-16:40 Coffee Break
 16:40-18:30 Oral Sessions
 18:30-19:30 Poster Session Presentations (Grosser Saal)
 18:30-22:00 Reception 10 Years EUSAR (Grosser Saal)

Thursday, May 18, 2006

08:00-16:00 Registration
 09:00-16:00 Industrial Exhibition/Poster Display

 08:30-10:10 Oral Sessions
 10:10-10:40 Coffee Break
 10:40-12:20 Oral Sessions
 12:20-13:50 Lunch
 13:50-15:30 Oral Sessions
 15:30-16:00 Awards Presentation and Closing Remarks (Hall 3)

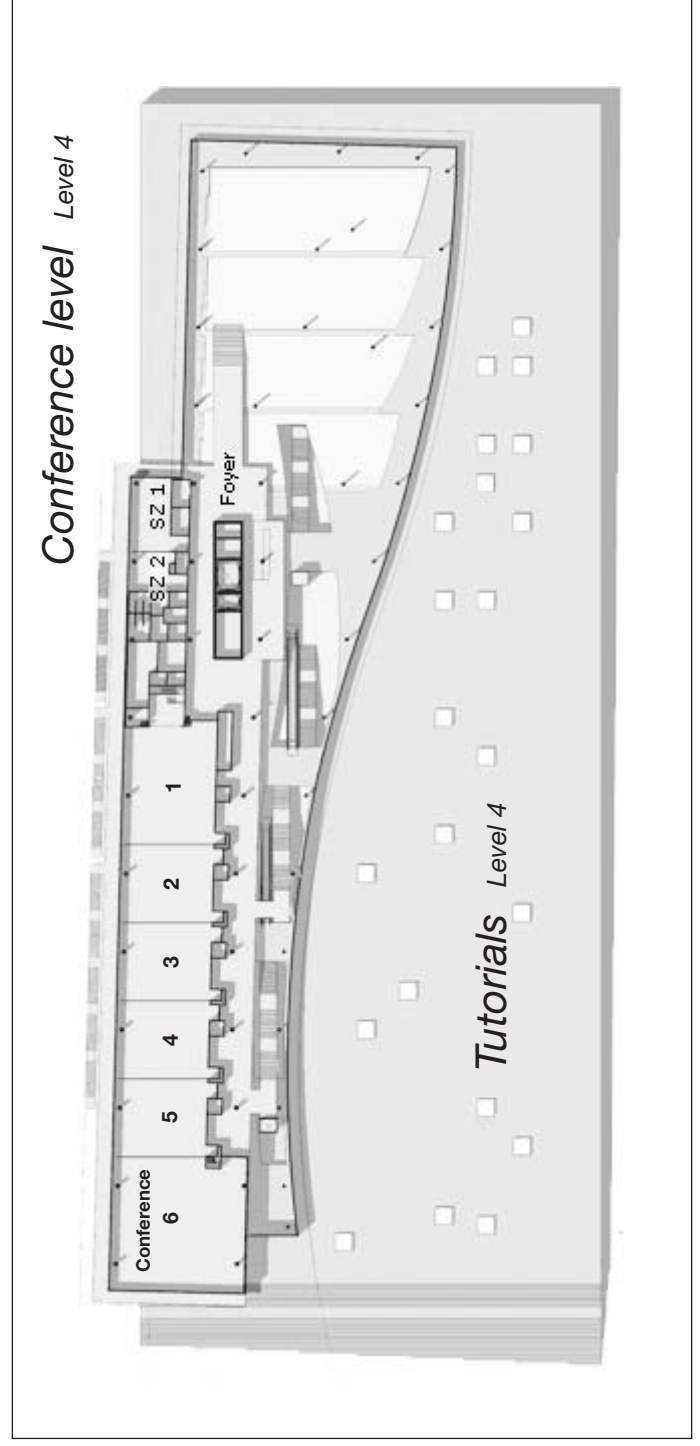
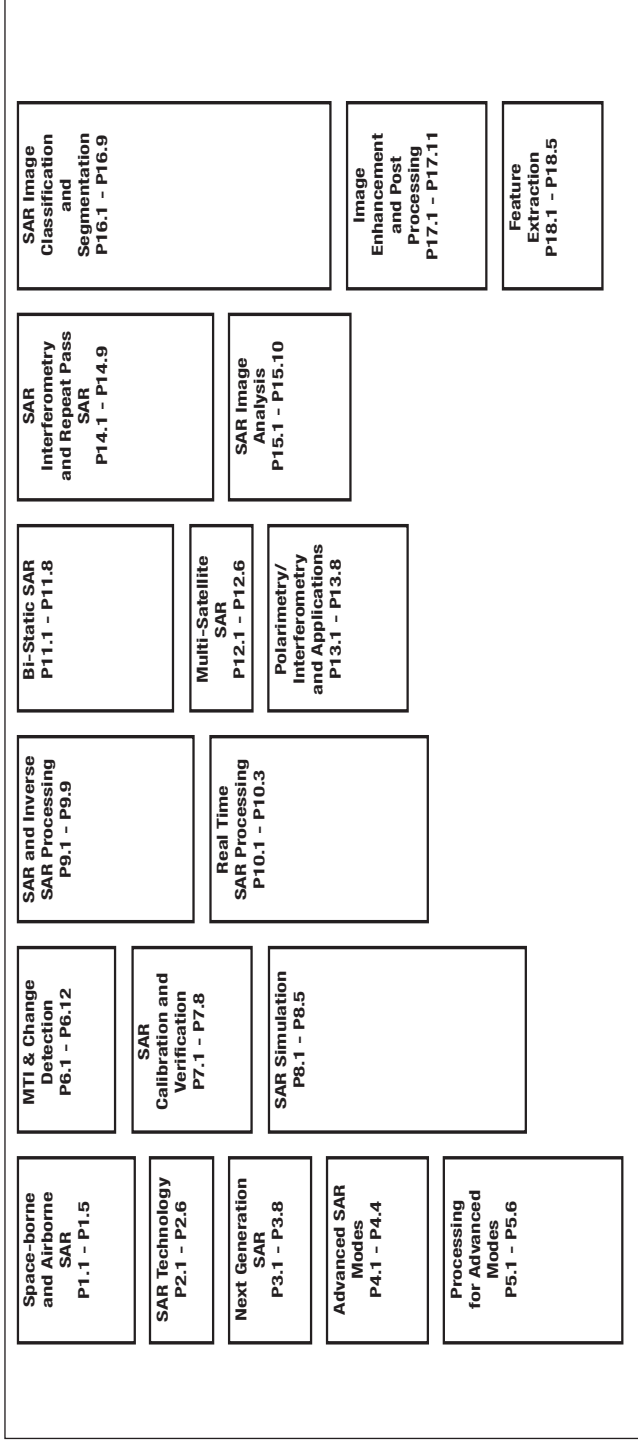
EUSAR 2006 - Programm Overview

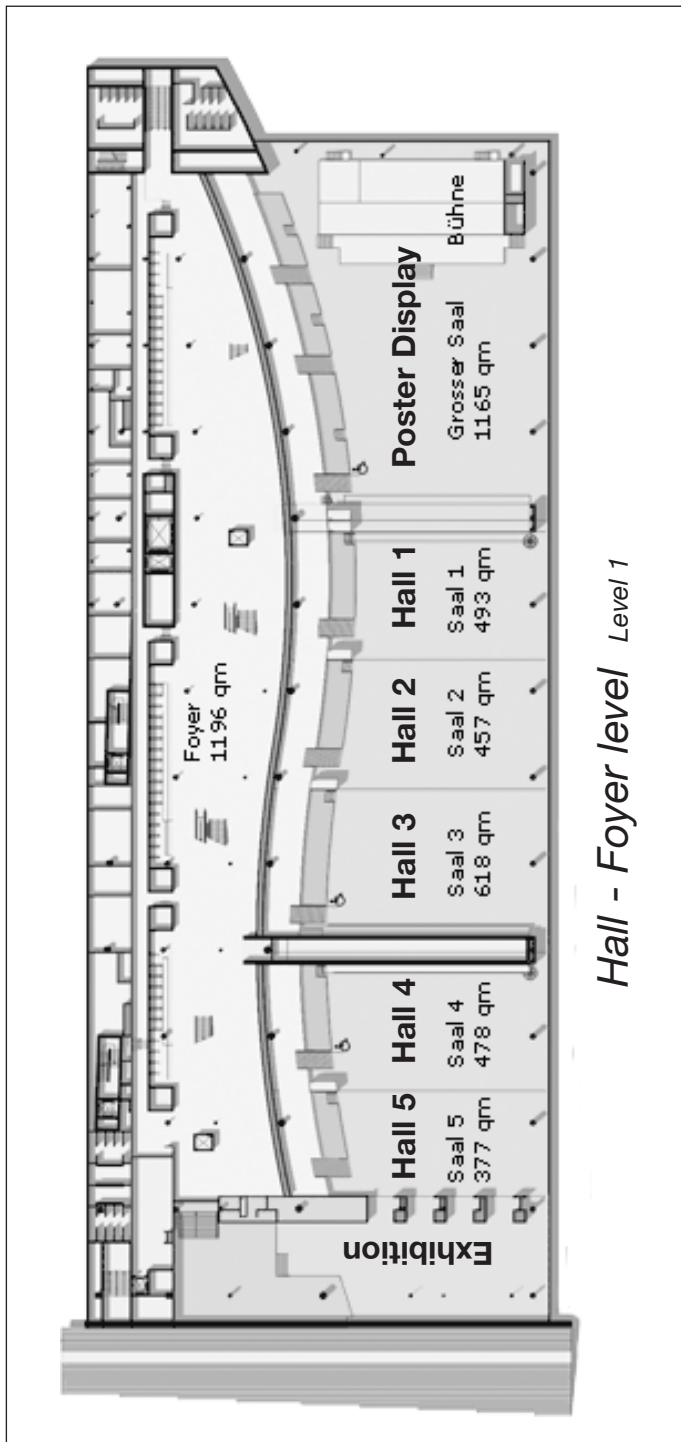
Monday, May 15		8:00 - 17:30 Conference Registration 9:00 - 17:30 Tutorials				
Tuesday, May 16		Hall 1	Hall 2	Hall 3	Hall 4	Hall 5
Morning	9:00 - 9:30			Welcome		
	9:30 - 10:30 Break 10:30 - 11:00			Plenary		
Afternoon	11:00 - 12:20 Lunch 12:20 - 13:50	Image Enhancement	Feature Extraction I	Pol-InSAR Applications I (invited)	TerraSAR-X Pre-launch Status I (invited)	Inverse SAR Systems
	13:50 - 15:30 Break 15:30 - 16:00	Advanced SAR Modes	Space-borne SAR Calibration I (invited)	Pol-InSAR Applications II (invited)	TerraSAR-X Pre-launch Status II (invited)	Inverse SAR Processing
Evening	16:00 - 17:40	Processing for Advanced Modes	Space-borne SAR Calibration II (invited)	ALOS/PALSAR (invited)	Space-borne SAR I	Advanced SAR Technology (invited)
	18:00 - 19:00	Piano Concert - Special Guest Isis Moreira (Brazil) & Richard Klemm (Grosser Saal)				
	20:00 - 22:00	Conference Dinner - Restaurant Pulverturm				
		Exhibition (Restaurant) Poster Display (Grosser Saal)				

Wednesday, May 17		Hall 1	Hall 2	Hall 3	Hall 4	Hall 5
Morning	8:30 - 10:10 Break 10:10 - 10:40	SAR Processing I	SAR Calibration and Verification	Ernst Luereburg Memorial Session I (invited)	Space-borne SAR II	SAR on Small Airborne Platforms (invited)
	10:40 - 12:20 Lunch 12:20 - 13:50	SAR Processing II	SAR Simulation/ Airborne SAR	Ernst Luereburg Memorial Session II (invited)	Space-borne SAR III	Airborne SAR
Afternoon	13:50 - 16:10 Break 16:10 - 16:40	Digital Beamforming (invited)	Three-dimensional SAR Techniques (invited)	Radar Remote Sensing of Hazards and Disasters (invited)	Bi-Static SAR I (invited)	Low Frequency SAR I (invited)
	16:40 - 18:20	SAR Technology	Multi-Interferogram Techniques (invited)	Polarimetry/ Interferometry and Applications I (invited)	Bi-Static SAR II (invited)	Low Frequency SAR II (invited)
Evening	18:30 - 19:30	Poster Session Presentations				
	19:30 - 22:00	Reception 10 Years EUSAR				
Exhibition (Restaurant)						
Poster Display (Grosser Saal)						

Thursday, May 18		Hall 1	Hall 2	Hall 3	Hall 4	Hall 5
Morning	8:30 - 10:10 Break 10:10 - 10:40	Next Generation SAR I	Urban Remote Sensing I (invited)	Polarimetry/ Interferometry and Applications II (invited)	ENVISAT/ASAR (invited)	MTI & Change Detection I
	10:40 - 12:20 Lunch 12:20 - 13:50	Next Generation SAR II	Urban Remote Sensing II (invited)	Polarimetric SAR I	SAR Interferometry I	MTI & Change Detection II
Afternoon	13:50 - 15:30		Feature Extraction II	Polarimetric SAR II	SAR Interferometry II	MTI & Change Detection III
	15:30 - 16:00	Awards Presentation and Closing Remarks (Hall 3)				
Exhibition (Restaurant)						
Poster Display (Grosser Saal)						

EUSAR 2006 - Poster Session Overview





TUTORIALS

Monday, May 15, 2006

EUSAR 2006 offers tutorials for three thematic topics:

- SAR Interferometry
- SAR Polarimetry and Polarimetric SAR Interferometry and
- Bistatic SAR and Moving Target Indication (MTI)

For all topics a comprehensive introduction, advanced concepts and application examples are given. The speakers are world-renowned experts in the addressed fields.

A separate registration for these tutorials is necessary and may be made with the registration form attached or via our website www.eusar.de.

Conference Room 1 **Topic 1: SAR Interferometry**

- 9:00 **Introduction into SAR Interferometry**
Michael Eineder, German Aerospace Center, Oberpfaffenhofen, Germany
- 10:30 *Coffee Break*
- 11:00 **Spaceborne SAR Interferometry**
Michael Eineder, German Aerospace Center, Oberpfaffenhofen, Germany
- 11:30 **Airborne SAR Interferometry I**
Scott Hensley, Jet Propulsion Laboratory, Pasadena, USA
- 12:30 *Lunch*
- 14:00 **Airborne SAR Interferometry II**
Scott Hensley, Jet Propulsion Laboratory, Pasadena, USA
- 15:00 *Coffee Break*
- 15:30 **Differential SAR Interferometry Applications**
Fabio Rocca, POLIMI, TRE, Milano, Italy
- 17:30 *End*

Conference Room 2 **Topic 2: SAR Polarimetry and Polarimetric SAR Interferometry**

- 9:00 **Overview of SAR Polarimetry**
Wolfgang Boerner, University of Illinois at Chicago, Chicago, USA
- 10:30 *Coffee Break*

- 11:00 **SAR Polarimetry**
Eric Pottier, University of Rennes, Rennes, France
- 12:30 *Lunch*
- 14:00 **Introduction into Polarimetric SAR Interferometry I**
Shane Cloude, AEL Consultants, Cupar, UK
- 15:00 *Coffee Break*
- 15:30 **Introduction into Polarimetric SAR Interferometry II**
Shane Cloude, AEL Consultants, Cupar, UK
- 16:00 **Application of Polarimetric SAR Interferometry**
Kostas Papathanassiou, German Aerospace Center, Oberpfaffenhofen, Germany
- 17:30 *End*

Conference Room 3 Topic 3: Bistatic SAR and Moving Target Indication

- 9:00 **Basics of Bistatic SAR**
Antonio Moccia, Universita di Napoli Federico II, Napoli, Italy
- 10:30 *Coffee Break*
- 11:00 **Advanced Bistatic and Multistatic SAR Concepts and Applications**
Gerhard Krieger, German Aerospace Center, Oberpfaffenhofen, Germany
- 12:30 *Lunch*
- 14:00 **Basics of Moving Target Indication for SAR**
Joachim Ender, FGAN, Wachtberg, Germany
- 15:00 *Coffee Break*
- 15:30 **Air- and Space-borne Multi-channel MTI**
Joachim Ender, FGAN, Wachtberg, Germany
- 16:00 **Advanced Concepts of Moving Target Indication and Space-borne Applications**
Pierfrancesco Lombardo, University of Rome "La Sapienza", Rome, Italy
- 17:30 *End*


Tuesday, May 16, 2006

Hall 3 Opening of the conference and Welcome


- 9:00 *Alberto Moreira, Conference Chairman, German Aerospace Center, Germany*
David Hounam, Technical Chairman, German Aerospace Center, Germany
Werner Wiesbeck, Awards Chairman, University of Karlsruhe, Germany
Hermann Rohling, Technical University of Hamburg-Harburg, Germany

Hall 3 Plenary Session

- 9:30 **The German Space Radar Program: TerraSAR-X and beyond**
Prof. Achim Bachem, Member of the Executive Board, German Aerospace Center, Germany
- 10:00 **The ESA SAR Missions and their Exploitation for Science and Applications**
Dr. Stephen Briggs, ESA/ESRIN, Italy
- 10:30 *Coffee Break*

Papers marked with  were subject to modifications compared with the previous conference program either because of schedules or moved from poster to oral presentations.

Hall 1 Image Enhancement

- Chair: Tom Farr, USA,*
Co-chair: Jens Fischer, Germany
- 11:00 **Void in SRTM Data Caused by Sand Dunes**
Tom Farr, JPL, USA
- 11:20 **Noise Estimation and Removal in Detected SAR Images**
Leonardo Costa, Davide D'Aria, Aresys S.R.L. Milano, Andrea Monti Guarnieri, POLIMI, Italy
- 11:40 **SAR Image Delineation of Multiple Targets in Close Proximity**
 *Christopher Moate, James Denton, QinetiQ, UK*
- 12:00 **A New Anisotropic Diffusion Method for Noise Filtering of SAR Interferometric Phase Images**
Qian Huang, Bingchen Zhang, Yanfei Wang, Institute of Electronics, Chinese Academy of Sciences, China
- 12:20 *Lunch*

Hall 1 Advanced SAR Modes

*Chair: Martin Suess, The Netherlands,
Co-chair: Sebastian Riegger, Germany*

13:50 **Airborne SAR Imaging Along a Circular Trajectory**
Hubert Cantalloube, Elise Colin, ONERA, France

14:10 **Terrain Observation with Progressive Scan (TOPS-) SAR**
Francesco De Zan, POLIMI, Italy

14:30 **Spaceborne DINSAR Monitoring with Weekly Revisit Time with TOPSAR**
Francesco De Zan, POLIMI, Davide D'Aria, Aresys S.R.L. Milano, Andrea Monti Guarnieri, Fabio Rocca, POLIMI, Italy

14:50 **Time-Varying R-D Algorithm for High Squint SAR Imaging**
Xu Sanyuan, Jianguo Wang, Xiaoling Zhang, University of Electronic Science and Technology of China, China

15:10 **Analysis of Oscillator Phase Noise Effects on Bistatic SAR**
Zhang Shengkang, Ruliang Yang, Institute of Electronics, CAS, China

15:30 *Coffee Break*

Hall 1 Processing for Advanced Modes

*Chair: Andrea Monti-Guarnieri, Italy,
Co-chair: Josef Mittermayer, Germany*

16:00 **2D-Scaled Inverse Fourier Transformation for Bistatic SAR**
Otmar Loffeld, Koba Natroshvili, Holger Nies, Ulrich Gebhardt, Stefan Knedlik, Amaya Medrano-Ortiz, Anthony Amankwah, Center for Sensorsystems (ZESS), University of Siegen, Germany

16:20 **Comparison of Bistatic SAR Focusing Approaches**
Koba Natroshvili, Otmar Loffeld, Center for Sensorsystems (ZESS), University of Siegen, Germany

16:40 **A Subaperture Range-Doppler Processor for Bistatic Fixed-Receiver SAR**
Jesus Sanz-Marcos, Pau Prats, Jordi Mallorqui, Albert Aguasca, University of Catalonia UPC, Spain

17:00 **Focused SAR Processing for Radar Echo Sounder Data**
Florence Hélière, Hélière Consultant, The Netherlands; Hugh Corr, British Antarctic Survey, UK; Chung-Chi Lin, Martin Suess, ESA/ESTEC, The Netherlands

17:20 **Enhancement of Azimuth Extent in Imaging for Spaceborne Sliding Spotlight SAR**
Tapan Misra, Space Applications Centre, ISRO, India

18:00 *Piano Concert (Grosser Saal) and Conference Dinner (Restaurant Pulverturm)*

Hall 2 Feature Extraction I

*Chair: Laurens Bierens, The Netherlands,
Co-chair: Ernst Krogager, Denmark*

11:00 **Automatic Classification of Small Ships in ISAR Images using 3D Models and Silhouette Matching**
Atle Knapkog, Norwegian Defence Research Establishment (FFI), Norway

11:20 **Enhancing the Classification Robustness Using Consecutive Range Doppler Maps in SAR Target Recognition**
Hartmut Schimpf, FGAN, Germany

11:40 **Clutter Analysis from Millimeterwave SAR-Data at Ka- and W-Band**
Peter Wellig, Konrad Schmid, armasuisse, Switzerland; Helmut Essen, Anika Kurz, Manfred Hägelen, Hartmut Schimpf, FGAN, Germany

12:00 **Multipath in Squinted SAR Imagery**
Andrew Bennett, Dstl, UK

12:20 *Lunch*

Tuesday, May 16

Hall 2 Spaceborne SAR Calibration I (invited)

*Chair: Ramon Torres, The Netherlands,
Co-chair: Martin Stangl, Germany*

13:50 **ASAR Calibration Performance: A Review After Four Years of Operation**
Betlem Rosich, ESA/ESRIN, Italy; Ramon Torres, Ignacio Navas-Traver, ESA/ESTEC, The Netherlands; Andrea Monti Guarnieri, POLIMI, Italy; Peter Meadows, BAE Systems Advanced Technology Centre, UK

14:10 **Efficient Calibration of Active Phased Array SARs**
Ramon Torres, ESA/ESTEC, The Netherlands; Manfred Zink, DLR, Germany

14:30 **On Ground Characterisation for Calibration of the TerraSAR-X Instrument**
Martin Stangl, Harald Braubach, Alexander Herschlein, EADS Astrium, Germany

14:50 **The External Calibration of TerraSAR-X, a Multiple Mode SAR System**
Benjamin Bräutigam, Marco Schwerdt, Markus Bachmann, DLR, Germany

15:10 **COSMO-Skymed SAR Instrument Calibration Approach**
Andrea Torre, Pasquale Capece, Alcatel Alenia Space, Italy

15:30 *Coffee Break*

Hall 2 Spaceborne SAR Calibration II (invited)

Chair: Manfred Zink, Germany, Co-chair: Martin Stangl, Germany

16:00 **Calibration Techniques for the RADARSAT-2 SAR System**
Anthony Luscombe, Alan Thompson, Kenneth James, Peter Fox, MDA, Canada

16:20 **Potentials of SAR Antenna Pattern Recognition using Active Ground Receivers**
Rainer Lenz, Andreas Lambrecht, Werner Wiesbeck, Universität Karlsruhe, Germany

16:40 **An Innovative Calibration Concept for Space SAR using an Active Antenna with Improved Efficiency, Reliability and Radiometric Accuracy**
Jacques Richard, Alcatel Alenia Space, France; Keith Dumper, SEA, UK; Florence Hélière, Hélière Consultant, Christopher Buck, ESA/ESTEC, The Netherlands

17:00 **Weight Estimation of a Phased Antenna Array Moving In a Signal Test Field**
Thomas Molkenhain, Jens Fischer, David Hounam, Marco Schwerdt, DLR, Germany

17:20 **DEM Calibration Concept for TanDEM-X**
Hauke Fiedler, Markus Bachmann, Sigurd Huber, Gerhard Krieger, Manfred Zink, DLR, Germany

18:00 *Piano Concert (Grosser Saal) and Conference Dinner (Restaurant Pulverturm)*

Hall 3 Pol-InSAR Applications I (invited)

*Chair: Eric Pottier, France,
Co-chair: Irena Hajnsek, Germany*

11:00 **Model Assessment and Inversion Limitations of Polarimetric SAR Interferometry Applied to Crop Monitoring**
Juan Lopez-Sanchez, J. David Ballester-Berman, University of Alicante, Spain

11:20 **The Distribution of Interferometric Phase Differentials and a Self-Initialising Pol-InSAR Classifier**
Marc Jäger, Maxim Neumann, Stephane Guillaso, Andreas Reigber, Berlin University of Technology, Germany

11:40 **Potential of Proposed Sensors for Pol-InSAR with Mixed-Species Forest in Australia**
Mark Williams, DSTO, Australia; Richard Lucas, University of Wales, Aberystwyth, Alex Lee, SRES, Australian National University, Canberra, Australia; Shane Cloude, AEL Consultant, UK

12:00 **Forest Parameter Retrieval From Pol-InSAR Data at L- and P-Band**
Pascale Dubois-Fernandez, Franck Garestier, ONERA, Isabelle Champion, INRA, Xavier Dupuis, ONERA, Philippe Paillou, Observatoire Astronomique de Bordeaux, France

12:20 *Lunch*

Hall 3 Pol-InSAR Applications II (invited)

*Chair: Eric Pottier, France,
Co-chair: Irena Hajnsek, Germany*

13:50 FOPEN and Change Detection using Pol-InSAR Data at P-band

*Elise Colin, Hubert Cantalloube, Xavier Dupuis,
ONERA, France*

14:10 Comparison of Orientation Angle Estimation Methods over Coherent Scatterers

*Rafael Schneider, Irena Hajnsek, DLR, Germany;
Hiroshi Kimura, Gifu University, Japan;
Jong-Sen Lee, NRL, USA*

14:30 Polarimetric and Interferometric SAR Effects on Land Ice

*Irena Hajnsek, Kostas Papathanassiou,
Javanti Sharma, DLR, Germany*

14:50 An Airborne Experiment on Snow Parameter Retrieval by Means of Multi-Channel SAR Data

*Thomas Nagler, Environmental Earth Observation IT
GmbH, Helmut Rott, University of Innsbruck,
Austria; Irena Hajnsek, Kostas Papathanassiou,
Rolf Scheiber, DLR, Germany*

15:10 Pol-InSAR Coherence Set Theory and Application

*Maxim Neumann, Andreas Reigber, Berlin University
of Technology, Germany; Laurent Ferro-Famil,
University of Rennes, France*

15:30 *Coffee Break*

Hall 3 ALOS/PALSAR (invited)

*Chair: Masanobu Shimada, Japan,
Co-chair: Manabu Watanabe, Japan*

16:00 ALOS and PALSAR Initial Calibration Status

*Masanobu Shimada, Manabu Watanabe,
Ake Rosenqvist, Norimasa Ito, JAXA, Japan*

16:20 The ALOS PALSAR Observation Strategy - A Global Mission Concept

*Ake Rosenqvist, Masanobu Shimada, Manabu
Watanabe, JAXA, Kanako Yamauchi, RESTEC,
Japan*

16:40 PALSAR Polarimetric Calibration Status

*Masanobu Shimada, Manabu Watanabe,
Ake Rosenqvist, JAXA, Japan*

17:00 Biomass Retrieval from PiSAR and PALSAR - Test Case from Tomakomai

*Manabu Watanabe, Masanobu Shimada,
Ake Rosenqvist, JAXA EORC, Japan*

17:20 Calibration of ALOS-PALSAR Data for Pol-InSAR Applications

*Kostas Papathanassiou, Rafael Schneider, DLR,
Germany; Shane Cloude, AEL Consultants, UK*

18:00 *Piano Concert (Grosser Saal) and Conference Dinner
(Restaurant Pulverturm)*

Hall 4 TerraSAR-X Pre-launch Status I (invited)

*Chair: Marian Werner, Germany,
Co-chair: David Miller, Germany*

11:00 The TerraSAR-X Satellite

Wolfgang Pitz, EADS Astrium, Germany

11:20 The TerraSAR-X Mission

Rolf Werninghaus, DLR, Germany

11:40 The TerraSAR-X Ground Segment

*Stefan Buckreuss, Peter Muehlbauer,
Josef Mittermayer, Wolfgang Balzer,
Rolf Werninghaus, DLR, Germany*

12:00 On-Ground Testing of TerraSAR-X Instrument

*David Miller, Martin Stangl, EADS Astrium,
Robert Metzger, DLR, Germany*

12:20 *Lunch*

Hall 4 TerraSAR-X Pre-launch Status II (invited)

*Chair: Rolf Werninghaus, Germany,
Co-chair: Wolfgang Pitz, Germany*

13:50 The TerraSAR-X Basic Products Format and Expected Performance

*Thomas Fritz, Michael Eineder, Helko Breit,
Birgit Schättler, Elke Boerner, Martin Huber, DLR,
Germany*

- 14:10 **TerraSAR-X Performance Update**
Jose Marquez Martinez, Carolina Gonzalez,
Josef Mittermayer, DLR, Germany
- 14:30 **The Calibration of the TerraSAR-X System**
Marco Schwerdt, Benjamin Bräutigam,
Markus Bachmann, Thomas Molkenthin,
David Hounam, Manfred Zink, DLR, Germany
- 14:50 **TanDEM-X: Mission Concept, Product Definition
and Performance Prediction**
Gerhard Krieger, Alberto Moreira, Hauke Fiedler,
Irena Hajnsek, Manfred Zink, Marian Werner,
Michael Eineder, DLR, Germany
- 15:10 **The TanDEM-X Mission Design and Data
Acquisition Plan**
Hauke Fiedler, Gerhard Krieger, Marian Werner,
Klaus Reiniger, Michael Eineder, Simone D'Amico,
Dietrich Erhardt, Martin Wickler, DLR, Germany
- 15:30 Coffee Break
- Hall 4 Space-borne SAR I**
Chair: Andrea Torre, Italy,
Co-chair: Peter Meadows, UK
- 16:00 **Future Satellite SAR Interferometric
Configurations for Ice Sheets Dynamics**
Benoit Legresy, Frederique Remy, CNRS/LEGOS,
Jean-Claude Souyris, Didier Massonnet, CNES,
France
- 16:20 **A New Technique for Interferometric Sounding of
Ice Sheets**
Ernesto Rodriguez, Anthony Freeman, JPL,
Ken Jezek, Ohio State University, Xiaoqing Wu,
Vexcel Corporation, USA
- 16:40 **Latest Results of the TerraSAR-X Central
Electronics**
Michael Brandfass, Peter Flad, Rudolf Zahn, EADS
Deutschland GmbH, Germany
- 17:00 **TanDEM-X: Mission and Science Exploration**
Irena Hajnsek, Alberto Moreira, DLR, Germany
- 17:20 **SAR Constellation Mission Payload Design**
Peter Allan, Arthur Baylis, Dino Kefallinos, Luis
Martins-Camelo, MDA, Canada
- 18:00 *Piano Concert (Grosser Saal) and Conference Dinner
(Restaurant Pulverturm)*
- Hall 5 Inverse SAR Systems**
Chair: Keith Morrison, UK,
Co-chair: Timo Kempf, Germany
- 11:00 **First Results for Ultra-High Resolution Tower-
Turntable ISAR and Tower-SAR at 94 GHz**
Helmut Essen, Manfred Haegelen, Ralf Brauns,
Guenter Konrad, Rainer Sommer, Alfred Wahlen,
FGAN-FHR, Germany
- 11:20 **An Interferometric ISAR System Model for
Automatic Target Identification**
Theodoros G. Kostis, University of the Aegean, GR;
Chris J. Baker, Hugh D. Griffiths, University College
of London, UK
- 11:40 **Far-Field Radar Cross Section Determination
using Near-Field ISAR-Imaging Techniques**
Thomas Vaupel, FGAN, Thomas F. Eibert, University
of Stuttgart, Germany
- 12:00 **SAR Techniques for the Imaging of Humans**
Alexander Dallinger, Sebastian Bertl, Simon
Schelkshorn, Jürgen Detlefsen, Technische
Universität München, Germany
- 12:20 Lunch
- Hall 5 Inverse SAR Processing**
Chair: Joachim Ender, Germany,
Co-chair: Patrick Berens, Germany
- 13:50 **Improved CLEAN Technique for ISAR Imaging
using Polynomial Fourier Transform**
Marco Martorella, Fabrizio Berizzi, Enzo Dalle Mese,
University of Pisa, Italy
- 14:10 **Investigation of 3-D RCS Image Formation of
Ships using ISAR**
Richard Lord, University of Cape Town, Willie Nel,
Yunus Gaffar, Council for Scientific and Industrial
Research, South Africa

- 14:30 **Emulated Bistatic Synthetic Aperture Imaging: Real World Data Analysis - Pt I - ISAR**
James Palmer, University of Queensland, Australia; Marco Martorella, University of Pisa, Italy; Brad Littleton, John Homer, University of Queensland, Australia
- 14:50 **3-D Point Scatterer Estimation for 3-D ISAR Imaging and Attitude Determination**
Jens Rosebrock, FGAN-FHR, Germany
- 15:10 **Motion Estimation for ISAR Imaging of Ground Moving Targets**
Patrick Berens, Joachim Ender, FGAN, Germany
- 15:30 *Coffee Break*
- Hall 5** **Advanced SAR Technologies (invited)**
Chair: Christoph Heer, Germany, Co-chair: Rudolf Zahn, Germany
- 16:00 **Antenna Radiators for Advanced Active Phased Array SAR Systems**
Christian Roemer, Philip Shutie, Christoph Heer, EADS Astrium, Germany
- 16:20 **An Advanced Reconfigurable Processing Architecture for Multi-mission SAR Sensor Payloads**
Laurens Bierens, EONIC B.V., The Netherlands
- 16:40 **Technologies for Advanced SAR Systems**
Michael Ludwig, Martin Suess, Nicolas Le Gallou, ESA/ESTEC, The Netherlands
- 17:00 **Feed Cluster for Reflector Based SAR Antenna**
Peter Koch, Christoph Heer, EADS Astrium, Germany; Leif Kanderhag, Mattias Viberg, Saab Ericsson Space, Sweden; Juan Guijarro, Kees Van'T Klooster, ESA/ESTEC, The Netherlands
- 17:20 **Advanced T/R Module Technology for SAR Applications**
Ralf Rieger, Heinz-Peter Feldle, EADS Deutschland GmbH, Germany
- 18:00 *Piano Concert (Grosser Saal) and Conference Dinner (Restaurant Pulverturm)*

Wednesday, May 17, 2006

- Hall 1** **SAR Processing I**
Chair: Dirk Geudtner, Canada, Co-chair: Giorgio Franceschetti, Italy
- 8:30 **The TerraSAR-X Multi-Mode SAR Processor: Integration, Test Methods and Results**
 *Helko Breit, Elke Boerner, Thomas Fritz, Andreas Niedermeier, Birgit Schättler, DLR, Ulrich Balss, Technical University of Munich, Germany*
- 8:50 **Traffic Monitoring with SAR: Implications of Target Acceleration**
Stefan Baumgartner, Martina Gabele, Gerhard Krieger, Karl-Heinz Bethke, Sergey Zuev, DLR, Germany
- 9:10 **Approximations in Efficient 2-D SAR Motion Compensation**
Gianfranco Fornaro, CNR-IREA, Giorgio Franceschetti, Stefano Perna, Universita di Napoli Federico II, Italy
- 9:30 **Autofocus for Very High Resolution Airborne SAR Imaging on Wide Swath**
Hubert Cantalloube, ONERA, France
- 9:50 **A New Method for Stepped-frequency SAR Imaging**
Bing Han, Chibiao Ding, Xingdong Liang, Yanping Wang, Wen Hong, Institute of Electronics, Chinese Academy of Sciences, China
- 10:10 *Coffee Break*
- Hall 1** **SAR Processing II**
Chair: Otmar Loffeld, Germany, Co-chair: Helko Breit, Germany
- 10:40 **Fast Factorised Backprojection Algorithm for Processing of Microwave SAR Data**
Lars Ulander, Per-Olov Fröling, Daniel Murdin, Swedish Defence Research Agency (FOI), Sweden
- 11:00 **Wide Swath Single Look Complex Product for ENVISAT ASAR**
Ole Morten Olsen, Kongsberg Spacetec AS, Norway

- 11:20 **SAR Imaging using Inversion of the Circular Radon Transform**
David Kettler, Doug Gray, University of Adelaide, Nick Redding, DSTO, Australia
- 11:40 **SAR Image Formation as Wavelet Transform**
Jens Fischer, Thomas Molkenthin, DLR, Madhu Chandra, Chemnitz University of Technology, Germany
- 12:00 **Application of a Fast SAR Technique for the Efficient 3-D Focusing in a Subsurface Radar**
Alexander Teggatz, Andreas Jöstingmeier, Abbas S. Omar, University of Magdeburg, Germany
- 12:20 Lunch
- Hall 1 Digital Beamforming (invited)**
Chair: Werner Wiesbeck, Germany, Co-chair: Karin Schuler, Germany
- 13:50 **Overview Beamforming Principles**
Christiane Kuhnert, Karin Schuler, Werner Wiesbeck, IHE, University of Karlsruhe, Germany
- 14:10 **A High Resolution Wide Swath SAR**
Christian Fischer, Christoph Heer, EADS Astrium, Gerhard Krieger, Rolf Werninghaus, DLR, Germany
- 14:30 **Simulation of High-Resolution Wide-Swath SAR**
Alicja Ossowska, Junghyo Kim, Werner Wiesbeck, Universität Karlsruhe, Germany
- 14:50 **Digital Beamforming Techniques for Spaceborne Radar Remote Sensing**
Gerhard Krieger, Nicolas Gebert, Alberto Moreira, German Aerospace Center, DLR, Germany
- 15:10 **High Resolution Wide Swath SAR Imaging with Digital Beamforming - Performance Analysis, Optimization and System Design**
Nicolas Gebert, Gerhard Krieger, Alberto Moreira, DLR, Germany
- 15:30 **Ground-based Measurement System for the Evaluation of a SAR with Digital Beamforming**
Junghyo Kim, Alicja Ossowska, Werner Wiesbeck, IHE, University of Karlsruhe, Germany

- 15:50 **Optimum Digital Beam Scanning with Directive Array Elements**
Ulrich Nickel, FGAN, Germany

16:10 Coffee Break

Hall 1 SAR Technology

Chair: Michael Ludwig, Germany, Co-chair: Markus Limbach, Germany

- 16:40 **RADARSAT-2 Antenna Measured Beam Pattern Performance and Comparison with Software Predictions**

Pierre Arsenault, Claude Grenier, Ivor Barnard, Arthur Baylis, MDA Space Systems, Canada

- 17:00 **Test Results of an L-band SAR Antenna Pre-development**

David Bibby, Alan Head, EADS Astrium, UK; Pierre Vogel, Kees Van'T Klooster, ESA/ESTEC, The Netherlands

- 17:20 **High Precision T/R-Module for SAR Earth Observations**

Marcus Wahl, Markus Adolph, Kristina Biller, Ulrich Hackenberg, Ralf Rieger, Bernhard Schweizer, Bernd Adelseck, Hans Brugger, Michael Loercher, EADS Defence Electronics, Germany

- 17:40 **High Power L-band T/R Module for Spaceborne SAR**

Andrew Knight, EADS Astrium, UK; Marcel van der Graaf, TNO Defence, Michael Ludwig, Pierre Vogel, Nicolas Le Gallou, ESA/ESTEC, The Netherlands

- 18:00 **A Polarimetric Phased Array Antenna for E-SAR in L-Band**

Markus Limbach, Markus Bachmann, Bernd Gabler, Ralf Horn, DLR, Germany

- 18:30 *Poster Session and Reception 10 Years EUSAR (Grosser Saal)*

Hall 2 SAR Calibration and Verification

Chair: *Betlem Rosich, Italy,*
Co-chair: *Hans M. Braun, Germany*

8:30 **From Commissioning to Extended Mission: 9 Years of Maintaining RADARSAT-1 Image Quality Performance**

Stephane Cote, Satish Srivastava, Canadian Space Agency, Pierre Le Dantec, MDA Geospatial Services, Bob Hawkins, Canada Centre for Remote Sensing, Canada

8:50 **External Calibration for CRS-1 and SAR-Lupe**

Hans Braun, Stefan Kicherer, RST Raumfahrt Systemtechnik GmbH, Germany

9:10 **Accurate Estimate of the Azimuth Antenna Pattern from SAR Images**

Andrea Monti Guarnieri, POLIMI, Davide Giudici, Aresys srl, Italy

9:30 **Results of Testing the Pulse Coded Calibration Technique on the LSAR Pre-Development Model Tile**

Andrew Ballard, QinetiQ Ltd., David Bibby, EADS Astrium, UK; Pierre Vogel, ESA/ESTEC, The Netherlands

9:50 **Sensitivity of SAR Calibration to the Combined Effects of Cross-Talk, Channel Imbalance and Faraday Rotation**

Trevor Macklin, Patricia Wright, Peter Meadows, BAE SYSTEMS Advanced Technology Centre, UK

10:10 *Coffee Break*

Hall 2 SAR Simulation / Airborne SAR

Chair: *Keith Raney, USA,*
Co-chair: *Rainer Speck, Germany*

10:40 **PIRDIS: A New Versatile Tool for SAR/MTI Systems Simulation**

Jochen Meyer-Hilberg, EADS Deutschland GmbH, Germany

11:00 **Mission Simulation Tool**

Thomas Neff, Bernd Brand, Sergio de Florio, Tino Zehetbauer, DLR, Germany

11:20 **SAR Raw Data Simulation using High Precision Focusing Methods**

Ahmed Shaharyar Khwaja, Laurent Ferro-Famil, Eric Pottier, University of Rennes1, France

11:40 **A UAV-Based SAR Raw Data Simulator for Complex Scenes**

Marijke Vandewal, Royal Military Academy, Belgium; Rainer Speck, Helmut Süß, DLR, Germany

12:00 **Flight Tests of MiniSAR, an Italian Airborne Interferometric SAR**

⚠️ *Giovanni Alberti, Ciro Caramiello, Luca Ciofaniello, Giovanni Galiero, Gianfranco Palmese, CORISTA, Antonio Moccia, Universita di Napoli, Federico II, Italy*

12:20 *Lunch*

Hall 2 Three-dimensional SAR Techniques (invited)

Chair: *Fabrizio Lombardini, Italy,*
Co-chair: *Andreas Reigber, Germany*

13:50 **A New Airborne Radar for 3D Imaging - Image Formation using the ARTINO Principle**

Jens Klare, Andreas Brenner, Joachim Ender, FGAN, Germany

14:10 **Polarimetric 3D Imaging Reconstruction using Pi-SAR Square Loop Flight Data**

Tadashi Hamasaki, Tohoku University, Japan; Laurent Ferro-Famil, Eric Pottier, University of Rennes, France; Motoyuki Sato, Tohoku University, Japan

14:30 **Localization of Thin Cylinders by Microwave Tomography: Experimental Results in Anechoic Chamber**

Adriana Brancaccio, Jessica Romano, Seconda Università di Napoli, Raffaele Solimene, Università Mediterranea di Reggio Calabria, Rocco Pierri, Seconda Università di Napoli, Italy

14:50 **Adaptive SAR Tomography with an EM Forest Scattering Simulator**

Fabrizio Lombardini, University of Pisa, Italy; Mark Williams, DSTO, Australia

15:10 **A Time Domain Beamforming Algorithm for SAR Tomography**



Matteo Nannini, Rolf Scheiber, DLR Germany

15:30 **Information Extraction from Tomographic SAR Data**

Stephane Guillaso, Marc Jäger, Andreas Reigber, Berlin University of Technology, Germany

15:50 **Estimating Tropical-Forest Density Profiles from Multibaseline, Multifrequency Interferometric SAR**

Robert Treuhaft, Bruce Chapman, Jet Propulsion Laboratory, USA; João Roberto dos Santos, Luciano Dutra, Fabio Gonçalves, Corina da Costa Freitas, Jose Claudio Mura, Instituto Nacional de Pesquisas Espaciais, Brazil; Paulo Maurício de Alencastro Graca, Instituto Nacional de Pesquisas da Amazônia, Brazil; Jason Drake, USDA Forest Service, USA

16:10 *Coffee Break*

Hall 2 Multi-Interferogram Techniques (invited)

*Chair: Alessandro Ferretti, Italy,
Co-chair: Richard Bamler, Germany*

16:40 **Coherent Scatterers at Different Polarizations and Frequencies**



Rafael Zandona Schneider, Luca Marotti, Kostantinos P. Papathanassiou, DLR, Germany

17:00 **A Space-Time Extension of the Minimum Cost Flow Phase Unwrapping Algorithm for D-InSAR Time-Series Generation**

Antonio Pepe, University of Napoli, Riccardo Lanari, IRECE, Italy

17:20 **Utilization of High-Doppler ERS Acquisitions in Interferometric Time Series**

Petar Marinkovic, Gini Ketelaar, Freek van Leijen, Ramon Hanssen, Delft University of Technology, The Netherlands

17:40 **On the Physical Characterization of SAR Permanent Scatterers in Urban Areas**

Daniele Perissin, Politecnico di Milano, Alessandro Ferretti, Tele-Rilevamento Europa TRE, Claudio Prati, Fabio Rocca, Politecnico di Milano POLIMI, Italy

18:00 **Three-Dimensional Imaging of Moving Ship with 3D Motion Based on Three Antennas InSAR**



Libo Tang, Daojing Li, Wen Hong, Yirong Wu, Chinese Academy of Sciences, China

18:30 *Poster Session and Reception 10 Years EUSAR (Grosser Saal)*

Hall 3 Ernst Lueneburg Memorial Session on Advances in Mathematical SAR Remote Sensing Methods I (invited)

*Chair: Wolfgang M. Boerner, USA,
Co-chair: Shane Cloude, UK*

8:30 **3-D Monitoring of Trees by Polarimetric GB-SAR**

Zheng-Shu Zhou, University of Adelaide, Australia; Wolfgang Boerner, UCI Chicago, USA; Motoyuki Sato, Tohoku University, Japan

8:50 **Information Extraction in Bistatic Polarimetry**
Shane R Cloude, AEL Consultants, Scotland, UK

9:10 **Polarimetric Scattering Indexes and Deorientation Approach for Terrain Surface Classification**

Ya-Qiu Jin, Fudan University, Shanghai, China

9:30 **A Mathematical Study About the "Coherence Set" in Polarimetric Interferometry**

Elise Colin, ONERA, France

9:50 **A Review of Polarization Orientation Angle Estimation and Applications**

Jong-Sen Lee, Dale Schuler, Thomas Ainsworth, Naval Research Lab., USA

10:10 *Coffee Break*

Hall 3 Ernst Lueneburg Memorial Session on Advances in Mathematical SAR Remote Sensing Methods II (invited)

*Chair: Wolfgang M. Boerner, USA,
Co-chair: Shane Cloude, UK*


10:40 **Decomposition of Polarimetric Variations using Transformation Operators**

Laurent Ferro-Famil, Eric Pottier, University of Rennes 1, France; Wolfgang Boerner, UIC Chicago, USA

11:00 **On the Gersgorin Disc Theorem applied to Radar Polarimetry**
Andreas Danklmayer, DLR, Germany; Wolfgang Boerner, UIC Chicago, USA; Madhu Chandra, Chemnitz University of Technology, Germany

11:20 **The Theory for a Forward SAR Model: Implementation, Applications and Challenges**
Mark Williams, DSTO, Australia

11:40 **Polarisation Coherence Tomography (PCT)**
Shane Cloude, AEL Consultants, Scotland, UK

12:00 **An Unsupervised Classification Method Using Wishart H/alpha/SPAN Algorithm**
 *Fang Cao, Wen Hong, Yirong Wu, Institute of Electronics, Chinese Academy of Sciences, China*

12:20 Lunch

Hall 3 Radar Remote Sensing of Hazards and Disasters (invited)

*Chair: Wolfgang M. Boerner, USA,
Co-chair: Helmut Suess, Germany*

13:50 **X- and L-Band Pi-SAR Observation to Chuetsu Earthquake Region, Japan**
Yoshio Yamaguchi, Yuki Yajima, Hiroyoshi Yamada, Niigata University, Seiho Uratsuka, Toshihiko Umehara, National Institute of Information and Communications Technology NICT, Toshifumi Moriyama, JAXA, Japan

14:10 **On the Role of National Agencies in Response to Natural Disasters: An Example**
R. Keith Raney, Johns Hopkins University, Applied Physics Laboratory, USA

14:30 **Subsidence of New Orleans Measured by PSInSAR**
Alessandro Ferretti, Fabrizio Navali, Tele-Rilevamento Europa - T.R.E., Fabio Rocca, POLIMI / TRE, Italy; Timothy H. Dixon, Falk Amelung, University of Miami, Roy Dokka, Louisiana University, USA

14:50 **GPR-SAR Signal Processing for Humanitarian Landmine Detection**
Motoyuki Sato, Xuang Feng, Takeo Kobayashi, Tohoku University, Japan

15:10 **Persistent Observation of Solid Earth Hazards Using Repeat Pass Radar Interferometry on a UAV Platform**
Paul Rosen, Scott Hensley, Jet Propulsion Laboratory, USA

15:30 **Application of InSAR for Monitoring Landslides**
Thomas Nagler, Environmental Earth Observation IT GmbH, Helmut Rott, University of Innsbruck, Austria

15:50 **Recent Developments of Radar Remote Sensing**
Wolfgang Boerner, UIC Chicago, USA

16:10 Coffee Break

Hall 3 Polarimetry/ Interferometry and Applications I (invited)

*Chair: Jong-Sen Lee, USA,
Co-chair: Laurent Ferro-Famil, France*

16:40 **An Overview of the Analysis of Multi-Frequency Polarimetric SAR Data**
Jakob van Zyl, Jet Propulsion Laboratory, USA

17:00 **Four-component Decomposition of POLSAR Image Based on Coherency Matrix**
Yoshio Yamaguchi, Yuki Yajima, Hiroyoshi Yamada, Niigata University, Japan

17:20 **Polarization Orientation Angle Shifts in Urban Areas on POLSAR Data**
*Hiroshi Kimura, Gifu University, Japan;
Kostas Papathanassiou, Irena Hajnsek, DLR, Germany*

17:40 **Polarimetric Variability in Simulated Vegetation Ground Cover**
Thomas Ainsworth, NRL, USA; Mark Williams, Tim Payne, DSTO, Australia; Jong-Sen Lee, NRL, USA

18:00 **Target Detection and Texture Segmentation in Polarimetric SAR Images using a Wavelet Frame**
Gianfranco De Grandi, Jan Kropacek, European Commission Joint Research Centre (JRC), Europe; Jong-Sen Lee, Dale Schuler, NRL, USA

18:30 *Poster Session and Reception 10 Years EUSAR (Grosser Saal)*


Hall 4 Space-borne SAR II

Chair: Jakob van Zyl, USA,
Co-chair: Michael Brandfass, Germany

- 8:30 **Impact of the Ionosphere on an L-band Space Based Radar**
Elaine Chapin, Samuel F. Chan, Bruce D. Chapman, Curtis W. Chen, Jan M. Martin, Thierry R. Michel, Ronald J. Muellerschoen, Xiaoping Pi, Paul A. Rosen, Jet Propulsion Laboratory, USA
- 8:50 **The MAPSAR Mission: Objectives, Design and Status**
Reinhard Schroeder, Juergen Puls, Irena Hajnsek, Friedrich Joachim, DLR, Horst Baier, Leri Datashvili, Technical University of Munich, Germany; Mario Marcos Quintino da Silva, Waldir Renato Paradella, Instituto Nacional de Pesquisas Espaciais INPE, Brazil
- 9:10 **The ERS-2 SAR Performance: 11 Years of Operation**
Peter Meadows, BAE Systems Advanced Technology Centre, UK; Betlem Rosich, ESA/ESRIN, Italy; Carla Santella, Vitrociset S.p.A., Nuno Miranda, Massimo Tranfaglia, Serco S.p.A., Italy
- 9:30 **ASAR Product Quality Review After Four Years of Operation**
Betlem Rosich, ESA/ESRIN, Italy; Peter Meadows, BAE Systems Advanced Technology Centre, UK; Andrea Monti Guarnieri, POLIMI, Davide D'Aria, ARESYS s.r.l., Italy; Massimo Tranfaglia, Nuno Miranda, Serco S.p.A., Italy
- 9:50 **SAR Payload of Radar Imaging Satellite (RISAT) of ISRO**
Tapan Misra, S.S. Rana, V.H. Bora, N.M. Desai, C.V.N. Rao, Rajeev Jyothi, Space Applications Centre, ISRO, India
- 10:10 *Coffee Break*

Hall 4 Space-borne SAR III

Chair: John C. Curlander, USA,
Co-chair: Hauke Fiedler, Germany

- 10:40 **Capabilities of Canada's planned RADARSAT Constellation**
Dirk Geudtner, Guy Seguin, Canadian Space Agency, Canada
- 11:00 **Pre-Launch Activities in Preparation for RADAR-SAT-2**
Daniel De Lisle, Luc Brûlé, Mahmood Reza Sahebi, Canadian Space Agency, Bob Hawkins, Kevin Murnaghan, Canada Centre for Remote Sensing, Wendy Branson, Gordon Staples MDA's Geospatial Services International, Canada
- 11:20 **ESA Sentinel-1 SAR Mission Concept**
 *Malcolm W. J. Davidson, Evert Attema, Björn Rommen, Nicolas Floury, Laura Moreno Patricio, Guido Levrini, ESA/ESTEC, Noordwijk, The Netherlands*
- 11:40 **Overview of the TECSAR Satellite Modes of Operation**
Ronit Levy-Nathansohn, Ury Naftaly, ELTA Systems Ltd., Israel
- 12:00 **SAR Activities in P.R. China**
Yi-Rong Wu, Minhui Zhu, Wen, Hong, National Key Lab. of Microwave Imaging Technology (MITL), Institute of Electronics, Chinese Academy of Sciences (IECAS), P.R. China
- 12:20 *Lunch*
- Hall 4 Bi-Static SAR I (invited)**
- Chair: Pascale Dubois-Fernandez, France,
Co-chair: Gerhard Krieger, Germany
- 13:50 **Focusing of Arbitrary Bistatic SAR Configurations**
Koba Natroshvili, Otmar Loffeld, Holger Nies, Center for Sensorsystems (ZESS), University of Siegen, Germany
- 14:10 **Frequency Domain Algorithm for Bistatic SAR**
Vincent Giroux, Hubert Cantaloube, ONERA, Franck Daout, GEA Université Paris 10, France

- 14:30 **Challenges of a Bistatic Spaceborne/Airborne SAR Experiment**
Ingo Walterscheid, Jens Klare, Andreas Brenner, Joachim Ender, FGAN, Otmar Loffeld, Center for Sensorsystems (ZESS), University of Siegen, Germany
- 14:50 **Performance Prediction and Verification for Bistatic SAR Synchronization Link**
Marwan Younis, Robert Metz, Gerhard Krieger, DLR, Rainer Klein, EADS Astrium, Germany
- 15:10 **Space-Surface BSAR- Analytical and Experimental Study**
Mikhail Cherniakov, Michail Antoniou, Rajesh Saini, Rui Zuo, Jim Edwards, University of Birmingham, UK
- 15:30 **Bistatic SAR image utility**
Gillian Yates, Alan Blake, QinetiQ Malvern, UK
- 15:50 **Extension of Bistatic SAR Processing Techniques: Steps to an Interferometric Bistatic Processor**
Marc Rodriguez-Cassola, Gerhard Krieger, Alberto Moreira, DLR, Germany
- 16:10 *Coffee Break*
- Hall 4 Bi-Static SAR II (invited)**
Chair: Pascale Dubois-Fernandez, France, Co-chair: Gerhard Krieger, Germany
- 16:40 **Modeling of the Polarimetric Bistatic Scattering of a Forested Area at P-band**
Laetitia Thirion, Cyril Dahon, Supélec Onera Nust Research Alliance, Elise Colin, Cécile Titin-Schnaider, ONERA, France
- 17:00 **Bistatic Moving Target Indication using Across-Track and Along-Track Interferometry**
Hubert Cantalloube, Pascale Dubois-Fernandez, Vincent Giroux, ONERA, France; Gerhard Krieger, DLR, Germany
- 17:20 **SABRINA - The Italian Mission for Endowing COSMO-SkyMed with Bistatic and Interferometric Capabilities**
Francesco Caltagirone, Arnaldo Capuzi, Alessandro Coletta, Claudio Galeazzi, Ettore Lopinto, Italian Space Agency ASI, Antonio Moccia, Università di Napoli Federico II, Italy

- 17:40 **An Efficient Non-Linear Chirp Scaling Method of Focusing Bistatic SAR images**

Yew Lam Neo, University of British Columbia, Frank Wong, MDA, Ian Cumming, University of British Columbia, Canada
- 18:00 **Autonomous Determination of Relative Position and Flight Direction of Two Airborne Radar Platforms**
Matthias Weiß, FGAN, Germany
- 18:30 *Poster Session and Reception 10 Years EUSAR (Grosser Saal)*
- Hall 5 SAR on Small Airborne Platforms (invited)**
Chair: Matthias Weiß, Germany, Co-chair: Scott Hensley, USA
- 8:30 **Lessons Learnt from the Design and Flight-Testing of a Highly Miniaturised mmW SAR Sensor System**
Michael Edrich, EADS Deutschland GmbH, Germany
- 8:50 **First Demonstration of an X-band Airborne FMCW SAR**
Adriano Meta, Paul Hakkaart, Fred van der Zwan, Peter Hoogeboom, Leo P. Ligthart, Delft University of Technology, The Netherlands
- 9:10 **SAR/MTI on Small Airborne Platforms**
Wim van Rossum, Ben Vermeulen, TNO Defence, Security and Safety, The Netherlands
- 9:30 **SAR Moving Targets Processing for Small Airborne Platforms**
Paulo Marques, Instituto Superior de Engenharia de Lisboa, José Dias, Instituto Superior Técnico, Portugal
- 9:50 **A Lightweight Stepped Frequency CW SAR for Operation from a Small UAV Platform**
Keith Morrison, University of Cranfield, England, UK
- 10:10 *Coffee Break*

Hall 5 Airborne SAR

*Chair: Peter Hoogeboom, The Netherlands,
Co-chair: Rolf Scheiber, Germany*

10:40 **An Airborne Radar for Three Dimensional Imaging and Observation - Technical Realisation and Status of ARTINO (invited)**

*Matthias Weiß, Joachim Ender, Olaf Peters,
Thomas Espeter, FGAN, Germany*

11:00 **Some Airborne Repeat Pass Deformation Measurements using the AIRSAR**

*Scott Hensley, Scott Rosen, Soren Madsen,
Bruce Chapman, Jet Propulsion Laboratory,
Howard Zebker, Stanford University, USA*

11:20 **AquiferEx Optical and Radar Campaign: Objectives and First Results**

Rolf Scheiber, Ralf Horn, Irena Hajsek, Kais Ben Khadhra, Martin Keller, DLR, Natascha Oppelt, Stephanie Wegscheider, Wolfram Mauser, Univ. of Munich (LMU), Germany; Brahim Ben Baccar, Direction Générale des Ressources en Eaux (DGRE), Ministère de l'Agriculture, Tunisia; Remo Bianchi, ESA/ESRIN, Italy

11:40 **Next Generation SAR/MTI Sensors**



*Rudolf Zahn, Michael Brandfass, Joachim Boukamp,
EADS Germany GmbH, Germany*

12:00 **An Integrated Real Time PGA Method for Strip Map Airborne SAR**

Xin Zhang, Chibiao Ding, Xingdong Liang, Yi-Rong Wu, Yanping Wang, National Key Laboratory of Microwave Imaging Technology, Institute of Electronics of Chinese Academy of Science, China

12:20 Lunch

Hall 5 Low Frequency SAR I (invited)

*Chair: Lars Ulander, Sweden,
Co-chair: Robert Treuhaft, USA*

13:50 **Radiometric Calibration of the LORA VHF/UHF SAR System**

Gary Smith-Jonforsen, Björn Hallberg, Chalmers University of Technology, Lars Ulander, FOI, Torleif Martin, Swedish Defence Research Agency, Sweden

14:10 **VHF/UHF Ultra-Wideband SAR Measurements of Forests**

Gary Smith-Jonforsen, B. Hallberg, K. Folkesson, Chalmers University of Technology, J.E.S. Fransson, Swedish University of Agricultural Sciences, P.-O. Frörlind, A. Gustavsson, L.M.H. Ulander, Swedish Defence Research Agency (FOI), M. Magnusson, Swedish University of Agricultural Sciences, Sweden

14:30 **E-SAR P-Band System Performance**

*Ralf Horn, Rolf Scheiber, Bernd Gabler,
Markus Limbach, DLR, Germany*

14:50 **Spectral Diversity Methods Applied to DEM Generation from Repeat-Pass P-Band InSAR**

Andreas Reigber, Berlin University of Technology, Germany; Bryan Mercer, Joel Maduck, Erin Kahr, Intermap Technologies Corporation, Calgary, Canada; Pau Prats, Universitat Autònoma de Barcelona, Bellaterra, Spain

15:10 **LORAM - A SAR/GMTI Data Collection Campaign**

Anders Gustavsson, Lars M.H. Ulander, and Per-Olov Frörlind, FOI, Sweden; Björn Hallberg and Gary Smith-Jonforsen, Chalmers University of Technology, Sweden; Philippe Dreuillet, Pascale Dubois-Fernandez, and Olivier Ruault du Plessis, ONERA, France

15:30 **Multi-Pass and Multi-Date at P- and L-Bands : Ground Penetration and Change Detection**

Xavier Dupuis, Philippe Dreuillet, ONERA, France; Lars Ulander, Anders Gustavsson, FOI, Sweden

15:50 **Ramses P-Band and L-Band Campaign over the Nezer Forest: Calibration and Polarimetric Analysis**



Pascale Dubois-Fernandez, Franck Garestier, Xavier Dupuis, ONERA, Isabelle Champion, INRA, Philippe Paillou, Observatoire Astronomique de Bordeaux, France

16:10 Coffee Break

Hall 5 Low Frequency SAR II (invited)

*Chair: Lars Ulander, Sweden,
Co-chair: Robert Treuhaft, USA*

- 16:40 **Bistatic Clutter Suppression in Low-frequency SAR**
Lars Ulander, Torleif Martin, Swedish Defence Research Agency (FOI), Sweden
- 17:00 **Wideband Synthetic Aperture Radar Imaging of Sub-Surface Interfaces in Glacial Ice**
Prasad Gogineni, Center for Remote Sensing of Ice Sheets, USA
- 17:20 **Glaciers and Ice Sheets Mapping Orbiter Concept**
Kenneth Jezek, The Ohio State University, Ernesto Rodriguez, Anthony Freeman, JPL, Prasad Gogineni, University of Kansas, John Curlander, Xiaoqing Wu, Vexcel Corporation, Chris Allen, University of Kansas, William Krabill, Wallops Flight Facility, John Sonntag, E.G&G Corporation, USA
- 17:40 **Universal Digital Receiver for Low Frequency SAR**
Hans Hellsten, Torbjörn Elfström, Nils Dagås, Claes Claesson, Ronny Larsson, Thomas Nilsson, Fredrik Norling, Andreas Berntsson, Patrik Dammert, Jan Sundström, Ericsson Microwave Systems AB, Sweden
- 18:00 **Frequency Effects in Pol-InSAR Forest Height Estimation**
 *Florian Kugler, Fifame N. Koudogbo, Kostas P. Papathanassiou, DLR, Germany; Karlheinz Gutjahr, Joanneum Research, Graz, Austria*
- 18:30 *Poster Session and Reception 10 Years EUSAR (Grosser Saal)*

Thursday, May 18, 2006

Hall 1 Next Generation SAR I

*Chair: Diane Evans, USA,
Co-chair: Jørgen Dall, Denmark*

- 8:30 **The Effects of Uncompensated Range Migration on Moving Target Imaging using Wideband SAR**
Brian Barber, Defence Science and Technology Laboratory, Farnborough, UK.
- 8:50 **Bistatic Airborne / Space Borne Hybrid Experiment: Simulation and Analysis**
Ulrich Gebhardt, Otmar Loffeld, Holger Nies, Koba Natroshvili, Center for Sensorsystems (ZESS), University of Siegen, Joachim Ender, FGAN, Germany
- 9:10 **On Dual-Polarized SARs and the Stokes' Parameters**
Keith Raney, Johns Hopkins University, USA
- 9:30 **On Ambiguities in SAR Design**
Anthony Freeman, Jet Propulsion Laboratory, USA
- 9:50 **High Resolution, Wide Swath Synthetic Aperture Radar using Multiple Transmit-Receive Apertures**
Song Yuepeng, Ruliang Yang, Institute of Electronics, Chinese Academy of Sciences, China
- 10:10 *Coffee Break*

Hall 1 Next Generation SAR II

*Chair: Anthony Freeman, USA,
Co-chair: Henning Skriver, Denmark*

- 10:40 **RADARSAT-2: Mission Overview and Applications**
 *Gordon Staples, Bernhard Rabus, MDA, Canada*
- 11:00 **A New Experimental High-Performance Ground-based Synthetic Aperture Radar System**
Christian Beine, Timo Kempf, Markus Peichl, Stephan Dill, Helmut Süß, DLR, Germany
- 11:20 **Sparse Bandwidth's Reconstruction in SAR Imagery**
Luc Bosser, Myriam Fiani-Nouvel, Thales Airborne Systems, France

11:40 **New Frontend Configuration of PAMIR for GMTI and Interferometric SAR Purposes**
Helmut Wilden, Andreas Brenner, Olaf Peters, Olaf Saalman, Bernd Poppelreuter, FGAN, Germany

12:00 **A Miniaturised Coded SAR Transponder for Target Tagging**
David Hounam, Robert Bauer, Markus Limbach, DLR, Germany; Pouria Sanae, Helena Norman, University of Lulea, Sweden

12:20 *Lunch*

Hall 2 **Urban Remote Sensing I (invited)**

*Chair: Uwe Stilla, Germany,
Co-chair: Fabio Dell'Acqua, Italy*

8:30 **Urban Road Network Extraction in SAR Images Exploiting Road Junction Knowledge**
Matteo Negri, Paolo Gamba, Gianni Lisini, University of Pavia, Pavia, Italy

8:50 **A Probabilistic Fusion Concept for Road Extraction from Multiple SAR Views**
Karin Hedman, Stefan Hinz, Uwe Stilla, Photogrammetry and Remote Sensing, Technische Universitaet Muenchen, Germany

9:10 **A Tracking Algorithm for Road Extraction in Dense Urban Areas: Importance of Contextual Information**
Virginie Amberg, Magellium, Marc Spigai, Yves Le Roy, Alcatel Alenia Space, France

9:30 **Bridge Detection in Multi-Aspect High-Resolution Interferometric SAR Data**
Uwe Soergel, University of Hannover, Erich Cadario, Hermann Gross, Antje Thiele, Ulrich Thoennessen, FGAN, Germany

9:50 **Mumford-Shah Filtering and Urban Area Classification**
Fabio Dell'Acqua, Paolo Gamba, Francesco Zucca, University of Pavia, Riccardo Scopigno, Istituto Superiore Mario Boella, Turin, Italy


10:10 *Coffee Break*

Hall 2 **Urban Remote Sensing II (invited)**

*Chair: Uwe Stilla, Germany,
Co-chair: Uwe Soergel, Germany*

10:40 **Study of Altimetric Mixtures in Layover Areas on High Resolution InSAR Images**
François Cellier, Helene Oriot, ONERA, Jean-Marie Nicolas, ENST Paris, France

11:00 **Urban Scene Analysis from SAR Image Sequences**
Robert Hill, Christopher Moate, David Blacknell, QinetiQ, UK

11:20 **Real-Time SAR-Simulation on Graphic Processor Units**
 *Timo Balz, Institute for Photogrammetry, University of Stuttgart, Germany*

11:40 **3D Information Extraction by Score Optimization Between SAR and Optical Data**
Florence Tupin, Frédéric Galland, GET Télécom Paris, France

12:00 **Building Recognition in Urban Areas from Multi-Aspect High-Resolution Interferometric SAR Data**
Antje Thiele, Ulrich Thoennessen, Erich Cadario, Karsten Schulz, FGAN, Uwe Soergel, University of Hannover, Germany

12:20 *Lunch*

Hall 2 **Feature Extraction II**

*Chair: Ken C. Jesek, USA,
Co-chair: Christoph Schaefer, Germany*

13:50 **Point Target Behaviour in High Resolution SAR images: Time-Frequency versus Polarimetric Analysis**
Céline Tison, Jean-Claude Souyris, Nicolas Clerc-Renaud, CNES, France

14:10 **Comparison of Methods for Classification of Land Cover using Polarimetric SAR Data**
Ernst Krogager, Doroteya Staykova, Vito Alberga, Danish Defence Research Establishment, Denmark; Andreas Danklmayer, DLR, Madhu Chandra, Chemnitz University of Technology, Germany

14:30 **Time-Frequency Analysis Applied to High Resolution SAR Images**
Yves Le Roy, Frederic Cazaban, Alcatel Alenia Space, Jean-Claude Souyris, Celine Tison, CNES, France

14:50 **Frequency Domain Raw SAR Data Compression for Multi-Mode Satellite SAR Instruments**
Theo Algra, National Aerospace Laboratory NLR, Laurens Bierens, EONIC B.V., The Netherlands

15:10 **Compression of Airborne SAR Image Data**
Christoph Schaefer, Alois Henrichs, Rudolf Zahn, EADS Astrium, Germany

15:30 *Awards Presentation and Closing Remarks (Hall 3)*

Hall 3 Polarimetry / Interferometry and Applications II (invited)
*Chair: Jong-Sen Lee, USA,
 Co-chair: Laurent Ferro-Famil, France*

8:30 **On Scattering Model Decomposition of POLSAR Image and Its Application to the ESPRIT-Based Pol-InSAR**
Hiroyoshi Yamada, Masahiro Yamazaki, Yoshio Yamaguchi, Niigata University, Japan

8:50 **Forest Mapping and Classification at L-Band using Pol-InSAR Optimal Coherence Set Statistics**
Laurent Ferro-Famil, Eric Pottier, University of Rennes 1, France; Florian Kugler, DLR, Germany; Jong-Sen Lee, NRL, USA

9:10 **Forest Classification Based on Multi-Baseline Interferometric and Polarimetric E-SAR Data**
Jong-Sen Lee, Mitchell R. Grunes, and Thomas Ainsworth, NRL, USA; Kostas Papathanassiou, Irena Hajnsek, Tobias Mette, DLR, Germany; Laurent Ferro-Famil, University of Rennes 1, France

9:30 **Scale Space Concepts in SAR Polarimetry**
Marc Jäger, Olaf Hellwich, Berlin University of Technology, Germany

9:50 **Analysis of Physical Parameter Estimation from PolSAR and Pol-InSAR Data**
Carlos López-Martínez, Universitat Politècnica de Catalunya, Spain, Eric Pottier, University of Rennes 1, France

10:10 *Coffee Break*

Hall 3 Polarimetric SAR I
*Chair: Gianfranco De Grandi, Italy,
 Co-chair: Kostas Papathanassiou, Germany*

10:40 **AQUIFEREX: Quantitative Surface Parameter Estimation using Polarimetric SAR Interferometry (invited)**
Irena Hajnsek, DLR, Germany

11:00 **An Analysis of Optimal Signal Processing in Full-Polarimetric SAR**
Dmitry Purik, German Sharygin, Tomsk State University of Control Systems and Radioelectronics TUCSR, Russia

11:20 **Using The Polarimetric Complex Frequency Correlation Function of an Oriented Volume For The Estimation of Agricultural Crops Parameters**

J. David Ballester-Berman, Juan Lopez-Sanchez, University of Alicante, Spain

11:40 **Quantitative Analysis of Pol-SAR for Target Feature Extraction**
Koichi Iribe, Tadashi Hamasaki, Shunichi Kusano, Motoyuki Sato, Tohoku University, Japan

12:00 **On the Usage of Polarimetric SAR Across-Track Interferometry for Vessel Classification**
Gerard Margarit, Jordi Mallorqui, Xavier Fabregas, Universitat Politècnica de Catalunya (UPC), Barcelona, Spain

12:20 *Lunch*

Hall 3 Polarimetric SAR II

Chair: Shane Cloude, UK,
Co-chair: Tobias Mette, Germany

13:50 **Compact Polarimetric Analysis of X-Band SAR Data**

Nick Stacy, Mark Preiss, Defence Science and Technology Organisation (DSTO), Australia

14:10 **Atmospheric Artefact Estimation and Compensation in Differential Polarimetric GB-SAR Acquisitions**

Luca Pipia, Xavier Fabregas, Albert Aguasca, Jordi Mallorqui, Technical University of Catalunya (UPC), Spain

14:30 **Analysis of PolSAR Data of Urban Areas using Time-Frequency Diversity**

Paul Leducq, Laurent Ferro-Famil, Eric Pottier, University of Rennes 1, France

14:50 **Characteristics of Polarimetric SAR Scattering in Urban and Natural Areas**

Dale Schuler, Jong-Sen Lee, NRL, USA; Gianfranco De Grandi, European Commission Joint Research Centre (JRC), Europe

15:10 **A Polarimetric Classification from PolSAR Data using SERD/DERD Parameters**

Sophie Allain, Laurent Ferro-Famil, Eric Pottier, University of Rennes 1, France

15:30 Awards Presentation and Closing Remarks (Hall 3)

Hall 4 ENVISAT/ ASAR (invited)

Chair: Yves-Louis Desnos, Italy,
Co-chair: David Hounam, Germany

8:30 **From Regions to Utility Poles: Recent Advances in ASAR Interferometry**

Fabio Rocca, POLIMI, TRE, Italy

8:50 **Sea Ice Deformation Mapping by Means of SAR**

Wolfgang Dierking, Thomas Busche, Carola von Saldern, Jörg Hartmann, Christian Haas, and Christof Lüpkes, Alfred Wegener Institute (AWI), Irena Hajsek, Rolf Scheiber, Ralf Horn, Jens Fischer, DLR, Germany; Jørgen Dall, Technical University of Denmark, Denmark

9:10 **On the Relationship of SAR Backscatter and Helicopter-borne Measurements of Sea Ice Thickness in the Arctic**

Thomas Busche, Wolfgang Dierking, Christian Haas, Von Saldern Carola, Alfred Wegener Institute for Polar and Marine Research, Germany

9:30 **Error Propagation and Data Quality Assessment for ASAR Persistent Scatterer Interferometry**

Freek van Leijen, Ramon Hanssen, Zbigniew Perski, Delft University of Technology, The Netherlands

9:50 **Backscatter and Doppler Signals of Surface Current in SAR images: A Step towards Inverse Modeling**

Johnny A. Johannessen, Knut-Frode Dagestad, Nansen Environmental and Remote Sensing Center, Bergen, Norway; Vladimir Kudryavtsev, Dmitry Akimov, Nansen International Environmental and Remote Sensing Center, St. Petersburg, Russia; Bertrand Chapron, Institute Francais de Recherche pour l'Exploitation de la Mer, France; Fabrice Collard, BOOST Technologies, Brest, France

10:10 Coffee Break

Hall 4 SAR Interferometry I

Chair: Paul Rosen, USA,
Co-chair: Jordi Mallorqui, Spain

10:40 **A Maximum Likelihood based Phase Estimate from Multi-Channel SAR Interferometry (invited)**

Stefano Tebaldini, Politecnico di Milano, Italy

11:00 **On the Determination of Temporal Reflectivity Fading with Multi-Aperture SAR**

Ishuwa Sikaneta, Christoph Gierull, Defence R&D Canada - Ottawa, Canada

11:20 **Inversion of Residual Motion Errors in Airborne Single and Repeat Pass Interferometry under the Presence of Squint and Large Topography Variations**

Christian Andres, Rolf Scheiber, DLR, Germany

11:40 **Measuring Surface Water Level and Slope using a Near-Nadir Ka-band Radar Interferometer**

Ernesto Rodriguez, Delwyn Moller, JPL, Douglas Alsdorf, Ohio State University, USA; Nelly Mognard, CNES/LEGOS, France

12:00 **Analysing Urban Areas using Multiple Track Pol-InSAR Data at L-Band**
Stefan Sauer, Laurent Ferro-Famil, Eric Pottier, University of Rennes 1, France; Andreas Reigber, Berlin University of Technology, Germany

12:20 *Lunch*

Hall 4 SAR Interferometry II

*Chair: Fabio Rocca, Italy,
Co-chair: Michael Eineder, Germany*

13:50 **Advanced Differential SAR Interferometric Techniques Applied to Airborne Data**
Pau Prats, Pablo Blanco, Jordi Mallorqui, Universitat Politecnica de Catalunya (UPC), Spain; Andreas Reigber, Berlin University of Technology, Alberto Moreira, DLR, Germany

14:10 **InSAR Elevation Bias Resulting from Penetration Into Thick Uniform Volumes**
Jørgen Dall, DTU, Denmark

14:30 **First Evaluations of Airborne InSAR Time-Series**
Karlus Macedo, Rolf Scheiber, Alberto Moreira, DLR, Germany

14:50 **Lambda Redux: Wavelength Selection for Science Missions Exploiting Repeat-pass Interferometric Synthetic Aperture Radar**
Paul Rosen, Scott Hensley, Tony Freeman, Jet Propulsion Laboratory, USA

15:10 **INDREX-II – Tropical Forest Height Estimation with L- and P-Band Polarimetric Interferometric SAR**



Florian Kugler, Kostas Papathanassiou, Irena Hajnsek, DLR, Germany; Dirk Hoekman, Wageningen University, The Netherlands

15:30 *Awards Presentation and Closing Remarks (Hall 3)*

Hall 5 MTI & Change Detection I

*Chair: Richard Klemm, Germany,
Co-chair: Karl-Heinz Bethke, Germany*

8:30 **Position Estimation of Moving Vehicles for Space-based Multi-channel SAR/MTI Systems**
Joachim Ender, Delphine Cerutti-Maori, FGAN, Germany

8:50 **Using Ambiguities to Aid in Moving Target Detection in PolSAR Images**
Chen Liu, Christoph Gierull, Defence R&D Canada - Ottawa, Canada

9:10 **Detecting Moving Targets in SAR Imagery Through Shadow Tracking**
Mohammed Jahangir, QinetiQ, UK

9:30 **A Method for Optimal GMTI Focussing and Enhanced Visual Evaluation**
Michael Eineder, Richard Bamler, Steffen Suchandt, DLR, Germany

9:50 **Wide Area Surveillance of Moving Targets with the SAR/GMTI System PAMIR**
Delphine Cerutti-Maori, Wolfram Bürger, Joachim Ender, Andreas Brenner, FGAN, Germany

10:10 *Coffee Break*

Hall 5 MTI & Change Detection II

*Chair: Alan Thompson, Canada,
Co-chair: Hartmut Runge, Germany*

10:40 **Multi-Channel Receiver Concepts for RADAR-SAT-2 Ground Moving Target Indication**
Shen Chiu, Christoph Gierull, Defence R&D Canada - Ottawa, Canada

11:00 **Development of a GMTI Processing System for the Extraction of Traffic Information from TerraSAR-X Data**
Steffen Suchandt, Michael Eineder, Rupert Müller, F. Meyer, G. Palubinskas, DLR, Andreas Laika, S. Hinz, Technical University of Munich, Germany

11:20 **An Experiment Plan to Test RADARSAT-2's GMTI Capabilities**
Pierre Beaulne, Charles Livingstone, Defence R&D Canada - Ottawa, Canada

- 11:40 **Single Ground Target Tracking with Adaptive Monopulse. Part I: The Sensor**
Richard Klemm, Ulrich Nickel, Wolfgang Koch, FGAN, Germany
- 12:00 **Single Ground Target Tracking with Adaptive Monopulse. Part II: The Tracker**
Wolfgang Koch, Richard Klemm, Ulrich Nickel, FGAN, Germany
- 12:20 *Lunch*
- Hall 5 MTI & Change Detection III**
*Chair: Paulo Marques, Portugal,
Co-chair: Konstyantyn Lukin, Ukraine*
- 13:50 **Performance Analysis of Space-based GMTI - From Monostatic to Multistatic Systems**
Delphine Cerutti-Maori, Joachim Ender, FGAN, Germany
- 14:10 **Comparison of System Concepts for Traffic Monitoring with Multi-channel SAR**
Martina Gabele, Stefan Baumgartner, Gerhard Krieger, Karl-Heinz Bethke, DLR, Germany
- 14:30 **Localisation in Ground Moving Target Indication: Techniques and Experimental Results**
Wolfram Bürger, Andreas Brenner, Delphine Cerutti-Maori, Joachim Ender, FGAN, Germany
- 14:50 **Noise-Waveform-SAR and Differential Interferometry for Detection of Structural Changes in Chernobyl Sarcophagus**
Konstantin A. Lukin, Anatoly A. Mogila, Usikov Institute for Radiophysics and Electronics NASU, Ukraine
- 15:10 **Retrieval of 2-D Current and Ocean Wave Information using Tandem-X in a Squinted Split Antenna Mode Configuration**
Johannes Schulz-Stellenfleth, Irena Hajnsek, Susanne Lehner, DLR, Germany
- 15:30 *Awards Presentation and Closing Remarks (Hall 3)*

Wednesday, May 17, 2006

Grosser Saal

18:30 **Poster Session**

P1 Space-borne and Airborne SAR

- P1.1 **The TerraSAR-X Payload Ground Segment for Operational SAR Data Processing**
Birgit Schättler, Helko Breit, Michael Eineder, Ralf Reissig, Joachim Schwarz, Egbert Schwarz, DLR, Germany
- P1.2 **Monitoring the Receiver Gain Droop of ASAR**
Christopher Buck, Mike Brown, ESA/ESTEC, Noordwijk, The Netherlands
- P1.3 **Interferometric SAR for European Student Moon Orbiter**
Bartek Dawidowicz, Marek Kuzniak, Wojciech Kulka, Mateusz Malanowski, Michal Piotrkowski, Krzysztof Kulpa, Tomasz A. Filippek, Warsaw University of Technology, Poland
- P1.4 **A Sustained Data Recording System for Space-borne SAR Missions**
Zhongxiang Zhang, Xin Tao, Junfeng Gao, Zhiyong Tong, Ruliang Yang, Institute of Electronics, Chinese Academy of Sciences, Beijing, China
- P1.5 **First Results of Radar Images Obtained by Improved Multi-Frequency Polarimetric SAR Complex "IMARC"**
Boris Kutuza, M. Bondarenko, A. Dzenkevich, A. Kalinkevich, M. Krilova, O. Shishkova, V. Verba, E. Vostrov, Institute of Radio Engineering and Electronics, Moscow, V.Manakov, V. Plushev, Radio Engineering Corporation VEGA, Moscow, Russia
- P2 SAR Technology**
- P2.1 **A High Performance LFM Signal Generator for UWB SAR**
Mingbo Zhu, Ruliang Yang, Institute of Electronics, Chinese Academy of Sciences, China

- P2.2 **A New Wideband Pulsed Waveform Generating Method for SAR**
Kai Ding, Ruliang Yang, Yan Shen, Chinese Academy of Sciences, China
- P2.3 **Stepped-Chirp SAR Imaging**
Haiying Li, Ruliang Yang, Institute of Electronics, Chinese Academy of Sciences, China
- P2.4 **Radio Frequency Interference Suppression in Low-Frequency Wideband Synthetic Aperture Radar Systems**
Stephen Hayward, Tim Lamont-Smith, James King, Matthew Farrow, QinetiQ Ltd, UK
- P2.5 **Advanced Digital Technology Elements of Synthetic Aperture Radar Payload of RISAT Mission**
Nilesh M. Desai, J.G.Vachhani, B. Saravana Kumar, V.R.Gujrati and S.S.Rana, Space Applications Centre, ISRO, India
- P2.6 **Modelling of Signal Transformation in Spaceborne UWB Short Pulse SAR**
Leon B. Neronskiy, V.S. Verba, A.P. Kurochkin, V.F. Los, I.G. Osipov, A.G. Ostrovsky, VEGA Corporation, Moscow, Russia

P3 Next Generation SAR

- P3.1 **A New Airborne Radar for 3D Imaging - Simulation Study of ARTINO**
Jens Klare, FGAN, Germany
- P3.2 **Space-Borne Noise SAR - Performance Study**
Krzysztof Kulpa Institute of Electronic Systems, Warsaw University of Technology, Poland
- P3.3 **A Passive Multistatic CW Radar System using Geostationary Illuminators**
Steffen Thöler, David Hounam, DLR, Germany
- P3.4 **Imaging Vehicles using FM-CW Radar**
Stéphane Méric, Institute of Electronic and Telecommunications of Rennes, Rébecca Giret, Centre d'Essais en Vol, Cazaux, France

- P3.5 **SUMATRA-94, A Conceptual Approach for a Low Cost Millimeterwave Synthetic Aperture Radar on Board a Model Aircraft**
Meinolf Bräutigam, Helmut Essen, Ralf Brauns, Günther Konrad, Rainer Sommer, Alfred Wahlen, Jörn Wilke, FGAN, Germany
- P3.6 **Using Satellite Yaw Technology to Avoid Blind Zone in Wide Swath High Resolution SAR**
Xiaoqing Wang, Minhui Zhu, Yongqiang Chen, Institute of Electronics, Chinese Academy of Science, China
- P3.7 **Continuous Pseudonoise Signals in Remote Sensing Systems**
Nataliya Sologub, National Aerospace University, Ukraine
- P3.8 **High-Resolution Airborne Stepped-frequency SAR System Design and Signal Processing**
Juan Chen, Tao Zeng, Teng Long, Shun-sheng Zhang, Cheng Hu, Beijing Institute of Technology, China

P4 Advanced SAR Modes

- P4.1 **Effect of Time and Frequency Synchronization Errors on Bistatic SAR Image Formation**
Ting Lei, Tao Zeng, Cheng Hu, Beijing Institute of Technology, China
- P4.2 **Calculated Performance of SAR for High Orbit Spacecraft using Nuclear Power Supply**
Igor G.Osipov, Leon B.Neronskiy, V.I.Andrianov, V.S.Verba, K.V.Kozlov, V.N.Kurenkov, D.V.Pushkov, VEGA Corporation, Russia
- P4.3 **System Error and Performance Analysis of Multiple Phase Centers Multi-Beam SAR**
Shiqiang Li, Ruliang Yang, Institute of Electronics, Chinese Academy of Sciences, China
- P4.4 **The Degradation of Azimuth Ambiguity caused by the Two-Step Focusing Approach in Spotlight SAR**
Deliang Kong, Hongjun Song, Minhui Zhu, Institute of Electronics, Chinese Academy of Science, China

P5 Processing for Advanced Modes

- P5.1 **Fast Back-Projection Algorithm for Bistatic SAR with Parallel Trajectory**
Cheng Hu, Tao Zeng, Teng Long, Chen Juan, Beijing Institute of Technology, China
- P5.2 **Motion Compensation for Bistatic SAR Frequency Domain Algorithm**
Vincent Giroux, Hubert Cantalloube, ONERA, Franck Daout, GEA Université Paris, France
- P5.3 **Mirror Target Interference in Bistatic SAR Imaging**
Ting Lei, Tao Zeng, Beijing Institute of Technology, Xiaoyan He, Institute of Electronics, Chinese Academy of Sciences, China
- P5.4 **Comparison of Geometry-based Doppler Centroid Estimators in Bistatic Airborne SAR**
Amaya Medrano Ortiz, Otmar Loffeld, Stefan Knedlik, Holger Nies, Koba Natroshvili, Center for Sensorsystems (ZESS), University of Siegen, Germany
- P5.5 **A High Quality Processing Algorithm for Space-borne Spotlight SAR**
Zegang Ding, Tao Zeng, Teng Long, Beijing Institute of Technology, China
- P5.6 **Complex Targets Imaging from Bistatic SAR Systems**
Fabrice Comblet, Alexandre Baussard, Ali Khenchaf, ENSIETA, France

P6 MTI & Change Detection

- P6.1 **Modelling of Space-Frequency Filtering Method for Moving Target Indication in SAR**
Leon Neronskiy, Igor Osipov, V.S.Verba, VEGA Corporation, Moscow, Russia
- P6.2 **A Comparison of ATI and DPCA Technique for Distributed Space-borne SAR**
Min Dong, Xiaoling Zhang, University of Electronic Science and Technology of China, China

- P6.3 **Sigma-Delta Channel Equalization by 3D STAP Technique**
Bartek Dawidowicz, Krzysztof Kulpa, Jacek Misiurewicz, Warsaw University of Technology, Poland
- P6.4 **Application of the Global Matched Filter to Space-Time Adaptive Processing**
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