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Signal Processing Society



IEEE Central Ukraine
Joint Chapter



The Third Microwaves, Radar and Remote Sensing Symposium

Program of MRRS-2011, August 25-27, 2011, Kiev, Ukraine

Thursday, August 25, 2011

8:00	Registration		
10:00 Assembly Hall	<p align="center">OPENING CEREMONY AND PLENARY SESSION</p> <p>First Vice-Chairman of the Committee on Science and Education of The Verkhovna Rada (Parliament) of Ukraine, First Vice-Rector of NAU: M. Lutsky, MRRS-2011 Chairman: F. Yanovsky, IEEE Region 8 Director: J. Modelski, EuMA Past President: R. Sorrentino, SPS Official Representative: J. Trelewicz</p> <p>PLENARY PRESENTATIONS:</p> <ol style="list-style-type: none"> Dmytro Vavriv, Institute of Radio Astronomy, NAN of Ukraine, Kharkiv, Ukraine: SAR Systems for Light-Weight Aircrafts Roberto Sorrentino, University of Perugia, Italy: Recent progress in miniaturized and reconfigurable filters for advanced communications and space applications Joachim Schiller, Fraunhofer-FHR, Wachtberg, Germany: Developments, Capabilities and Challenges in Non Cooperative Target Identification by Radar 		
12:50-	Lunch		
	Stream A – Lecture Hall 1-001	Stream B – Academic Council Hall	Stream C – Lecture Hall 1-002
13:40-15:00	<p>SESSION A1 - RECENT ADVANCES ON POWER AMPLIFIER DESIGN (Focused) Chairperson: Almudena Suarez (Spain)</p> <ol style="list-style-type: none"> Stability analysis of power amplifiers considering modulation effect <i>Almudena Suarez</i> (Invited), F. Ramirez, I. Lizarraga, J-M. Collantes, Spain 1 KW Compact L-band Pulsed Power Amplifier for Radar Applications <i>Angel Mediavilla</i>, Spain <i>Antonino Tobia, and Paolo Colantonio</i>, Italy Design consideration for CMOS RF and mm-wave power amplifiers <i>Patrick Reynaert</i>, Belgium The Doherty Amplifier and its Evolution for Modern Communication Systems <i>Paolo Colantonio, Franco Giannini, Rocco Giofr'e, Luca Piazzon</i>, Italy Low Phase-Noise HEMT Microwave Voltage-Controlled Oscillator <i>Vladimir Ulansky</i>, Libya 	<p>SESSION B1 - REMOTE SENSING OF THE EARTH AND PLANETS Chairperson: Robert McMillan (USA)</p> <ol style="list-style-type: none"> Radar Detection of Seismic Origin Waves on the Black Sea Surface <i>A.G. Boev, O.Y. Matveyev, D.M. Bychkov, V.B. Yefimov, V.N. Tsymbal, and A.A. Boeva</i>, Ukraine Ionosphere Compensation and Stepped Frequency Processing in the MARSIS Experiment <i>M. Restano, M.Mastrogiuseppe, A. Masdea, G. Picardi, and R. Seu</i>, Italy Doppler Analysis for data inversion and image processing in the MARSIS experiment <i>M. Restano, A. Masdea, G. Picardi, and R. Seu</i>, Italy Advanced Processing of Altimetry Cassini Radar Data <i>M. Mastrogiuseppe, V. Poggiali, R. Seu, and G. Picardi</i>, Italy Three Dimensional Reconstruction using COSMO-SkyMed High-Resolution Data <i>Fabio Baselice, Giampaolo Ferraioli and Vito Pascazio</i>, Italy 	<p>SESSION C1 – IMAGING RADAR/LADAR SYSTEMS AND IMAGE PROCESSING Chairperson: Krzysztof Kulpa (Poland)</p> <ol style="list-style-type: none"> High Resolution and High Dynamic Range Noise Radar <i>K.A. Lukin, O.V. Zemlyaniy, P.L. Vyplavin, S.K.Lukin, V.P. Palamarchuk</i>, Ukraine Through the Wall Radar Imaging with MIMO Conventional Beamforming Processing <i>B. Boudamouz, P. Millot, and C. Pichot</i>, France The Development of Construction Methods of Air Objects Radar Images for Signals with Frequency Tuning <i>D.G. Mitrofanov</i>, Russian Federation Simulation of 3D LADAR Imaging System Using Fast Target Response Generation Approach <i>Ali Adnan Al-Temeemy</i>, UK Three Dimensional LADAR Imaging System using AR-4000LV Laser Rangefinder <i>Ali Adnan Al-Temeemy</i>, UK

15:00	Coffee Break		
15:20-17:00	<p>SESSION A2 - MICROWAVE COMPONENTS AND DEVICES Chairperson: Roberto Sorrentino (Italy)</p> <p>1. Modelling of an inductor on SiGe: from the measurement to the equivalent scheme <i>Daniel Pasquet</i> (Invited), <i>Linh Nguyen-Tran</i>, <i>Philippe Descamps</i>, <i>Emmanuelle Bourdel</i>, <i>Dominique Lesénéchal</i>, and <i>Sébastien Quintanel</i>, France</p> <p>2. High Q Bandpass Filters on Sapphire Substrate for Atmosphere Remote Sensing <i>K. Zemlyakov</i>, <i>P. Turalchuk</i>, <i>I. Vendik</i>, and <i>V. Khaikin</i>, Russian Federation <i>V. Radzikhovsky</i>, Ukraine</p> <p>3. Superheterodyne Amplification of Optical and Terahertz Pulses in n-GaN Films <i>V.V. Grimalsky</i>, <i>S.V. Koshevaya</i>, and <i>A. Zamudio-Lara</i>, Mexico <i>Yu.G. Rapoport</i>, Ukraine</p> <p>4. Cavity with Dispersive Medium that Refractive Index is Positive and Negative <i>Mariya Antyufeyeva</i>, Ukraine</p> <p>5. Broadband 4 x 4 Butler matrices utilizing tapered-coupled-line directional couplers <i>Slawomir Gruszczyński</i>, <i>Krzysztof Wincza</i>, and <i>Krzysztof Sachse</i>, Poland</p>	<p>SESSION B2 - OBJECT RECOGNITION AND CLASSIFICATION Chairperson: Gerhard Greving (Germany)</p> <p>1. License Plate Location Based on Combinatorial Feature <i>Zheng Yan-qing</i>, <i>Li Dai-ping</i>, and <i>Shu-wen</i>, China</p> <p>2. Fuzzy Logic Track Classifier <i>Jacek Karwatka</i>, Poland</p> <p>3. Ground Moving Target Classification by Using DCT Coefficients Extracted from Micro-Doppler Radar Signatures and Artificial Neuron Network <i>Pavlo Molchanov</i>, <i>Jaakko Astola</i>, and <i>Karen Egiazarian</i>, Finland <i>Alexander Totsky</i>, Ukraine</p> <p>4. Recognition of foreign objects hidden in clutter conditions based on a novel method of diffraction tomography <i>N. Blaunstein</i>, Israel</p> <p>5. System of Standartless Diagnostic of Cell Panels Based on Fuzzy-Art Neural Network <i>V.S. Eremenko</i>, <i>A.V. Pereidenko</i>, and <i>V.O. Rogankov</i>, Ukraine</p>	<p>SESSION C2 - PASSIVE SURVEILLANCE METHODS AND SYSTEMS Chairperson: Sergey Kolomiets (Russian Federation)</p> <p>1. The Concept of Airborne Passive Radar <i>Krzysztof Kulpa</i> (Invited), <i>M. Malanowski</i>, <i>P. Samczynski</i>, and <i>B. Dawidowicz</i>, Poland</p> <p>2. A Concept of GSM-based Passive Radar for Vehicle Traffic Monitoring <i>Piotr Samczynski</i>, <i>K. Kulpa</i>, <i>M. Malanowski</i>, <i>P. Krysik</i>, and <i>Ł. Maślikowski</i>, Poland</p> <p>3. A Hybrid Passive Radar System Concept for Medium Range Air Surveillance <i>Heiner Kuschel</i>, <i>J. Heckenbach</i>, <i>D. O'Hagan</i>, and <i>M. Ummenhofer</i>, Germany</p> <p>4. Radiometric Modules at 22 and 36 GHz for Continuous Monitoring of Atmospheric Opacity at RATAN-600 Radio Telescope V.B.Khaikin, <i>K.N.Zemlyakov</i>, and <i>I.B.Vendik</i>, Russian Federation <i>V.N.Radzikhovsky</i> and <i>S.E.Kuzmin</i>, Ukraine</p>
17:30	Welcome Party – In the cafeteria of NAU, 1st floor		

Friday, August 26, 2011

<p>9:00-10:40</p>	<p>SESSION A3 - ANTENNA DESIGN, MODELING AND ANALYSIS <u>Chairperson: Jozef Modelski (Poland)</u></p> <p>1. A Novel Planar Square Fractal Antenna for Wireless Devices S.Suganthi, S.Raghavan, and D.Kumar, India</p> <p>2. Fast and Accurate Numerical Modeling of a TARA-like Shielded Paraboloidal Reflector Antenna Vitaliy S. Bulygin, Alexander I. Nosich, and Yuriy V. Gandel, Ukraine</p> <p>3. Analysis of Back Wall Smoothing and Multisource Feeding Effects for H-Plane Horn Radiator OzanYurduseven and OkanYurduseven, Turkey</p> <p>4. Parametric Analysis of Open-ended Waveguide Array Feeder for Pattern Shaping of Parabolic Reflector Antenna Ahmet Serdar Turk and Okan Mert Yucedag, Turkey</p> <p>5. Circular Multiuser Beam-Free Phased Array Antenna for Wireless Communications and Comparison with the Standard Multisector Antennas I. Yu. Sergeev, Russian Federation</p>	<p>SESSION B3 - SAR AND ISAR METHODS AND SYSTEMS <u>Chairperson: Piotr Samczynski (Poland)</u></p> <p>1. Image Reconstruction in SAR, ISAR and Tomography Applications at Millimeter Wave Band A. Vertiy (Invited), H. Cetinkaya, A. Pavlyuchenko, M. Tekbas, A. Unal, A. Kizilhan, A.Kaya, C. Ozdemir, S. Demirci, E. Yigit, Turkey S. Panin, Ukraine</p> <p>2. ISAR Motion Parameter Estimation via Multilateration S. Brisken and J. G. Worms, Germany</p> <p>3. Through-Wall Synthetic Aperture Radar Based on Finite Beamwidth Processing Jiabing Zhu, Yi Hong, and Liang Tao, China</p> <p>4. Combining Level Set and Orthogonal Transforms for Speckle Reduction and Detail Preservation in SAR Images Dmitriy V. Fevraleev and Vladimir V. Lukin, Ukraine R.C.P. Marques and F.N.S. Medeiros, Brazil</p> <p>5. Range-Doppler Algorithm with Extended Number of Looks O.O. Bezvesilniy, I.M. Gorovyi, V.V. Vynogradov, and D.M. Vavriv, Ukraine</p>	<p>SESSION C3 - TIME AND DOA ESTIMATION PROBLEMS <u>Chairperson: Rustem Sinitsyn (Ukraine)</u></p> <p>1. A New Method of the Spectral Correlation-Interferometric Radio Direction-Finding V.V. Tsyporenko, Ukraine</p> <p>2. Improvement of 2-D DOA Estimation with Tapered Matrix Pencil Algorithm Ali Azarbar, O. Mehdinejad, and Morteza Kazerooni, Iran</p> <p>3. Experimental Estimation of the Time of Arrival Measurement Accuracy Increasing along the Propagation Path at the Cost of Multi-channel Processing M.V. Mironov, E.P. Voroshilin, and V.P. Denisov, Russian Federation</p> <p>4. Theoretical and Experimental Results on Recognition of Polarized Signal Multipath Propagation in Secondary Radar and Multilateration Systems I.M. Ivashko, E.I. Gabrusenko, and F.J. Yanovsky, Ukraine</p>
<p>10:40</p>	<p align="center">Coffee Break</p>		

<p>11:00-12:40</p>	<p>SESSION A4 – UWB SIGNALS, DEVICES, AND SYSTEMS Chairperson: Ahmet Serdar Turk (Turkey)</p> <p>1. Ambiguity in the Definition of Ultra-Wideband Microwave Imaging Systems' Resolution <i>Marek Bury, Jozef Modelski, Sebastian Kozlowski, and Yevhen Yashchyshyn, Poland</i></p> <p>2. The Interaction Between the Human Body and the Ultra Wide Band Radar Pulse <i>Elmissaoui Taoufik, Soudani Nabila, and Bouallegue Ridha, Tunisia</i></p> <p>3. Ultra-Wideband Planar Spiral Antenna <i>I. Ivanchenko, V. Pishchikov, and N. Popenko, Ukraine</i></p> <p>4. Multi-Band Impulse Filtered UWB Signal Transmission by Wideband Optical VCSEL Transmitter <i>Gábor Fehér, Csaba Füzy, and Tibor Berceli, Hungary</i></p> <p>5. Ultrabroadband 4 x 4 Butler matrix with the use of multisection coupled-line directional couplers and phase shifters <i>Krzysztof Wincza, Slawomir Gruszczynski, and Krzysztof Sachse, Poland</i></p>	<p>SESSION B4 - REMOTE SENSING OF THE ATMOSPHERE Chairperson: Gaspare Galati (Italy)</p> <p>1. Polarimetric Passive Remote Sensing of Atmospheric Temperature at 60 GHz <i>Robert McMillan</i> (Invited), USA</p> <p>2. New Approach to Smoke Detection by Means of Doppler Radar <i>A.G. Gorelik and S.F. Kolomiets, Russian Federation</i></p> <p>3. Profiling of rain parameters by double frequency radar <i>A.Linkova, G.Khlopov, and O.Voitovych, Ukraine</i></p> <p>4. Connection of Reflected Radar Signal with Liquid-Hydrometeor Deformation Rate <i>Yu.A. Averyanova, A.A. Averyanov, and F.J. Yanovsky, Ukraine</i></p> <p>5. Polarimetric method for remote predicting a zone of icing-in-flight in clouds and precipitation <i>A.A. Pitertsev and F.J. Yanovsky, Ukraine</i></p>	<p>SESSION C4 - STATISTICAL SIGNAL PROCESSING Chairperson: Igor Prokopenko (Ukraine)</p> <p>1. An Adaptive Meridian Estimator <i>Dmitriy Kurkin, Alexey Roenko, and Vladimir Lukin, Ukraine</i> <i>Igor Djurovič, Montenegro</i></p> <p>2. Robust Space-Time Adaptive Processing Against Doppler and Direction-of-Arrival Mismatch <i>Moein Ahmadi and Kamal Mohamedpour, Iran</i></p> <p>3. Improving the Performance of Root-MUSIC via Pseudo-Noise Resampling and Conventional Beamformer <i>V. Vasylyshyn, Ukraine</i></p> <p>4. Generalized Copula Ambiguity Function Application for Radar Signal Processing <i>Zh. Bokal, R.B. Sinitsyn, and F.J. Yanovsky, Ukraine</i></p> <p>5. Circular Measurement Data Modeling and Statistical Processing in LabView <i>Yuriy V. Kuts, Svetlana V. Shengur, and Leonid N. Scherbak, Ukraine</i></p>
<p>12:50</p>	<p style="text-align: center;">Lunch</p>		

13:40-14:20	<p style="text-align: center;">POSTER SESSION</p> <p><u>Chairperson: Yuliya Averyanova (Ukraine)</u></p> <ol style="list-style-type: none"> 1. On Longitudinal Electromagnetic Wave Formation due to Discrete Change of the Charge Density for Cases of Normal and Oblique Incidence of an Accelerated Point Charged Particle <i>S.D. Prijmenko, Ukraine</i> 2. Microwave Beamforming Networks Employing Rotman Lenses and Cascaded Butler Matrices for Automotive Communications Beam Scanning Electronically Steered Arrays <i>Ardavan Rahimian, UK</i> 3. Transformation of Mechanical Signals into Electrical Signals in Carbon Nanotubes Massive <i>D.E. Aznakayeva, G.Y. Mihaylova, M.M. Nischenko, Ukraine</i> 4. Underground Object Detection Based on Cross Correlation and Hough Transform <i>Jian Wang and Yi Su, China</i> 5. Nonlinear Interaction of Space Charge Waves of Millimeter Wave Range in Nonuniformn-GaN Films <i>V.V. Grimalsky, S.V. Koshevaya, G. Urquiza-Beltran, and A. Garcia-Barrientos, Mexico</i> 6. Conditional Linear Random Process as a Mathematical Model of Radar Noise <i>Mykhailo Fryz and Leonid Scherbak, Ukraine</i> 7. Modelling of radiating effects in transistors <i>K.B. Aldamzharov and A.A. Tujakbaev, Kazakhstan</i> <i>D.A. Tujakbaev, Turkey</i> 8. Methods of Processing of Broadband and Narrowband Radar Signals <i>Yuriy Kuts, Leonid Scherbak, and Ganna Sokolovska, Ukraine</i> 9. Comparative analysis of modern time-series analysis methods <i>A.V. Dergunov, Y.V. Kuts, and L.M. Shcherbak, Ukraine</i> 10. Compact Parabolic Reflector Antenna Design with Cosecant-Squared Radiation Pattern <i>OkanYurduseven and OzanYurduseven, Turkey</i> 11. MIMO PCL in a Single Frequency Network <i>Mojtaba Radmard, Seyyed M. Karbasi, Babak H. Khalaj, and Muhammad M. Nayebi, Iran</i> 12. A novel mathematical approach for the problem of CFAR clutter model approximation <i>Giovanni Marino and Evan J. Hughes, UK</i>
14:20-16:00	Excursion in the National Aviation University
16:00	Coffee-Break

<p>16:20-18:00</p>	<p>SESSION A5 - COMPUTATIONAL ELECTROMAGNETICS AND EMC Chairperson: Vladimir Ulansky (Libya)</p> <p>1. The integral equation technique: applications at THz, IR, and optical frequencies Guy Vandebosch (Invited), <i>Niels Verellen, and Victor Moshchalkov, Belgium</i></p> <p>2. Analysis of Q-factor of dielectric resonator by means of fractional-rational approximation of reflection response M. V. Andreev, O.O. Drobakhin, D.Yu. Saltykov, and U.V. Zhernoklova, Ukraine</p> <p>3. Calculation of Reflection Coefficient of Complicated Inhomogeneous Layers Using Piecewise Constant and Piecewise Linear Approximation V. Borulko, O. Drobakhin, and D. Sidorov, Ukraine</p> <p>4. Radiation of a Current-Conductive 2D Object of a Complex Shape O.V. Vyshnevsky, Ukraine</p> <p>5. Compressed Sensing and r-Algorithms N.M. Glazunov, Ukraine</p>	<p>SESSION B5 - METEOROLOGICAL RADAR SIGNAL PROCESSING Chairperson: Dmytro Vavriv (Ukraine)</p> <p>1. New approach for Fast Processing of Polarimetric Doppler Radar Signals K.I. Shelevytska, O.V. Semenova, I.V. Shelevytsky, and F.J. Yanovsky, Ukraine</p> <p>2. Spectral Moment Estimation of Weather Echoes in Pulsed Doppler Weather Radars: Mean Radial Velocity D.I. Lekhovytskiy, D.S. Rachkov, A.V. Semeniaka, V.P. Ryabukha, and D.V. Atamanskiy, Ukraine</p> <p>3. Spectral Moment Estimation of Weather Echoes in Pulsed Doppler Weather Radars: Mean Power D.I. Lekhovytskiy, D.S. Rachkov, A.V. Semeniaka, V.P. Ryabukha, and D.V. Atamanskiy, Ukraine</p> <p>4. Spectral Moment Estimation of Weather Echoes in Pulsed Doppler Weather Radars: Spectrum Width D.I. Lekhovytskiy, D.S. Rachkov, A.V. Semeniaka, V.P. Ryabukha, and D.V. Atamanskiy, Ukraine</p> <p>5. Signal Processing for DDV Estimation D.N. Glushko and F.J. Yanovsky, Ukraine</p>	<p>SESSION C5 - RADAR SIGNAL DETECTION AND CLUTTER Chairperson: Joachim Schiller (Germany)</p> <p>1. Radar and Wind Turbines - RCS Theory and Results for Objects on the Ground and in Finite Distances Gerhard Greving (Invited), Germany</p> <p>2. Detection of Fluctuating Targets in the Presence of Clutter in HRR(High Range Resolution) RADARS Using the Hough Transform Vahid Riazi, Fariba Haghjoo, and Abbas Sheikhi, Iran</p> <p>3. Extraction of GLR Detector for Target Lines in the Range-Time Space of a Search RADAR S. Sharify, A. Moqiseh, and M.M. Nayebi, Iran</p> <p>4. Signal Detection in the Condition of Aprioristic Uncertainty of the Interference Characteristics I.G. Prokopenko, Ukraine</p>
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<p>Saturday, August 27, 2011</p>	
<p>9:00 Assembly Hall</p>	<p style="text-align: center;">PLENARY SESSION AND CLOSING CEREMONY</p> <p>Chairpersons: Felix Yanovsky, Roberto Sorrentino</p> <p>1. PLENARY PRESENTATION: On the Signal Design for Multifunction/Multi-parameter Radar, Gaspere Galati, Tor Vergata University, Roma, Italy</p> <p>2. EuMA Awards</p> <p>3. Closing Remarks</p>
<p>11:00-19:00</p>	<p style="text-align: center;">Boat Trip along Dnieper River with Conference Dinner on the Island (swimsuit is recommended)</p> <p style="text-align: center;">The buses depart from the National Aviation University at 11:00</p>
<p>11:00-14:00</p>	<p style="text-align: center;">Excursion to the State Museum of Aviation (for those who depart in the evening Saturday)</p> <p style="text-align: center;">The bus departs from the National Aviation University at 11:00</p>