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Monday, November 1

Monday, November 1 9:20 - 10:30

Mo1: Plenary Session 1

Room: Grand Ballroom

Chair: Aleksey Dyskin (Technion - Israel Institute of Technology, Israel)

9:20 NASA Technologies to Find Life Beyond Earth and Answers to Other Science Questions...N/A
Goutam Chattopadhyay (NASA-JPL/Caltech, USA)

9:55 Evolution of Space On-Board Technologies in the global geospatial and connectivity era...N/A
Massimo Comparini (E-GEOS, Italy)

Monday, November 1 11:00 - 11:30

Mo2A: Plenary Opening Session

Room: Grand Ballroom

Monday, November 1 11:30 - 12:40

Mo2B: Plenary Session 2

Room: Grand Ballroom

Chair: Yosef Pinhasi (Ariel University, Israel)

11:30 Addressing 6G Energy Efficiency with a Gearbox-PHY...N/A
Gerhard P. Fettweis (Technische Universität Dresden, Germany)

12:05 Electrophysiology Meets Printed Electronics: The Beginning of a Beautiful Friendship...N/A
Yael Hanein (Tel-Aviv University, Israel)

Monday, November 1 14:00 - 15:50

CS1: Network Routing and Performance

Room: Grand A

Chair: Aviel Glam (Rafael Advance Defense Systems Ltd., Israel)

14:00 Improved Load-Balancing Routing Algorithms in MANET Using Node Cardinality Metric...1
Aviel Glam (Rafael Advance Defense Systems Ltd., Israel); Maayan Hacohen (Rafael, Israel); Barak Farbman (Rafael & Technion - Israel Institute of Technology, Israel)

14:20 Lossy Compression for MANET Distributed Network Control...7

Aviel Glam (Rafael Advance Defense Systems Ltd., Israel); Lior Wunsch (Ort Braude College of Engineering & Rafael, Israel); Barak Farbman (Rafael & Technion - Israel Institute of Technology, Israel)

14:40 Finding the fastest navigation rout by real-time future traffic estimations...13

Nadav Voloch (Ben Gurion University of the Negev, Israel); Noa Voloch - Bloch (Voloch Knowledge Horizons, Israel)

15:00 Provably Secure Protocol for 5G HetNets...17

Vincent O. Nyangaresi (Tom Mboya University College, Kenya)

WIE: Women in Engineering

Organizer: Alina Karabchevsky

Room: Grand B

Chair: Alina Karabchevsky (Ben-Gurion University, Israel)

14:00-14:10 Welcome remarks: Sherry Hess

14:10-14:40 Invited Talk: Dr. Irit Idan, Executive Vice President R&D at Rafael Advanced Defense Systems

14:40-14:50 Break

14:50-15:40 Panel Discussion: Career Crossroads - Dilemmas of Women in Engineering

Panel includes: Prof. Yael Hanein, Tel Aviv University, X-trodes, Nano Retina Neta Goshen, Electrum Ltd. Dana Cohen, Tel Aviv University Moderators: Maya Shor-Peled, Esti Toledo, Alexandra Makarochkin

15:40-15:50 Concluding Remarks: Shmuel Auster

MSR1: Microwave Systems & Radar 1

Room: Grand C

Chairs: Alon Eilam (Technion - Israel Institute of Technology, Israel), Caleb Fulton (University of Oklahoma, USA)

14:00 Multiple return analysis for noncoherent pulse compression of periodic coded waveforms...23

Itzik Cohen and Nadav Levanon (Tel Aviv University, Israel); Avi Zadok (Faculty of Engineering, Bar-Ilan University, Israel)

14:20 Doppler and micro-Doppler Passive Jamming and Cloaking with Dynamic Metasurfaces...N/A

Dmytro Vovchuk, Vitali Kozlov and Pavel Ginzburg (Tel Aviv University, Israel)

14:40 Radar Targets Classification with Manifold Learning...N/A

Yoad Pilosof, Aviv-Abraham Golan, Alon Eilam and Pavel Lifshits (Technion - Israel Institute of Technology, Israel)

15:00 Point-Cloud-Based Road Course Estimation on Automotive Radar Data...29

Yi Jin and Robert Prophet (Institute of Microwaves and photonics, Friedrich-Alexander-Universität Erlangen-Nürnberg); Anastasios Deligiannis and Juan Carlos Fuentes Michel (BMW Group, Germany); Martin Vossiek (LHFT, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)

CP: Special Session: Computational Photonics: Theory and Applications

Organizers: Grigorios Zouros & Nikolaos Tsitsas

Room 3

Chairs: Ariel Epstein (Technion - Israel Institute of Technology, Israel), Nikolaos L. Tsitsas (Aristotle University of Thessaloniki, Greece)

14:00 Symmetry-based methods for understanding, engineering, and envisioning light-matter interactions (Invited)...N/A

Ivan Fernandez-Corbaton (Karlsruhe Institute of Technology, Germany)

14:20 Overcoming the Rayleigh Hypothesis with sources distributed on the topological skeleton of a scatterer: a numerical demonstration of the method (Invited)...N/A

Aristeidis G. Lamprianidis (KIT, Germany); Carsten Rockstuhl and Ivan Fernandez-Corbaton (Karlsruhe Institute of Technology, Germany)

14:40 Solving Inverse Problems in the Field of Computational Nanophotonics (Invited)...N/A

Carsten Rockstuhl, Yannick Augenstein, Taavi Repän, Ramakrishna Venkitakrishnan, Lina Kuhn and Xavier Garcia-Santiago (Karlsruhe Institute of Technology, Germany)

15:00 Dielectric Photonic Crystal Slabs: Leaky-Wave Radiation from an Embedded 2-D Electric Line Source (Invited)...35

Ludovica Tognolatti and Paolo Baccarelli (Roma Tre University, Italy); Vakhtang Jandieri (General and Theoretical Electrical Engineering (ATE), Faculty of Engineering, Germany); Silvio Ceccuzzi, Cristina Ponti and Giuseppe Schettini (Roma Tre University, Italy)

15:20 Volume-Integral-Equation Analysis of Scattering by Layered All-Dielectric Metasurfaces...N/A

Nikolaos L. Tsitsas (Aristotle University of Thessaloniki, Greece)

CT1: Wireless Apps 1

Organizer: Limor Urfaly

Room 5

AP1: Antennas & Radomes

Room: Royal H

Chair: Reuven Shavit (Ben-Gurion University, Israel)

14:00 Multibeam 2D Lens Antenna Based on Metasurface Technology...39

Alex Davidov and Reuven Shavit (Ben-Gurion University, Israel)

14:20 *Wide-band Wi-Fi antenna utilizing multiple resonances in plants...N/A*

Abhinav Jain, Dymtro Vovchuk, Roman Noskov and Pavel Ginzburg (Tel Aviv University, Israel)

14:40 *Conformal Radome Design Based on Metasurface Technology with Printed Elements...43*

Michael Elman and Reuven Shavit (Ben-Gurion University of the Negev, Israel)

15:00 *Self-aligning miniature ceramic RFID tags...N/A*

Ildar Yusupov (ITMO University, Russia); Dmitry Filonov (Moscow Institute of Physics and Technology, Russia); Alexey P. Slobozhanyuk (ITMO University & Australian National University, Russia); Dmitry Dobrykh (ITMO University, Russia & Tel Aviv University, Israel); Pavel Ginzburg (Tel Aviv University, Israel)

UWA1: Special Session: Underwater Acoustics 1

Organizer: Roi Blumberg

Room: Royal I

Chair: Roi D Blumberg (University of Tel Aviv, Israel)

14:00 *Fast Solution of Volume Integral Equations for Acoustic Scattering by Inhomogeneous Objects (Invited)...N/A*

Meydan Kaplan (Ben Gurion University of the Negev, Israel); Yaniv Brick (Ben-Gurion University of the Negev, Israel)

14:20 *Long-range propagation and modal structure of the sound field in a shallow water waveguide with low-sound speed bottom (Invited)...N/A*

Andrey A. Lunkov (Prokhorov General Physics Institute of the Russian Academy of Sciences & Bauman Moscow State Technical University, Russia); Boris Katsnelson and Ernst Uzhansky (University of Haifa, Israel)

14:40 *Measurements of shipping noise in shallow water using two synchronized arrays and estimation of bottom parameters (Invited)...N/A*

Marina Yarina (University of Haifa, Israel); Andrey A. Lunkov (Prokhorov General Physics Institute of the Russian Academy of Sciences & Bauman Moscow State Technical University, Russia); Boris Katsnelson (University of Haifa, Israel)

15:00 *A Beam Summation Scheme for Ultra-wideband RCS Calculations in the High-frequency Regime...47*

Pranav Chopde, Ehud Heyman and Amir Boag (Tel Aviv University, Israel)

15:20 *Fast monostatic scattering computation based on Gaussian beam shooting and frame decomposition...51*

Christine Letrou (TELECOM SudParis, France); Mossaab Hariz (Télécom SudParis, France); Barak Galanti and Amir Boag (Tel Aviv University, Israel)

BM: Biomedical Engineering

Room: Royal J

Chairs: Amir Landesberg (Technion, Israel), Amit Livneh (Technion-Israel Institute of Technology, Israel)

14:00 *Deep-Learning based Motion Correction for Myocardial T1 Mapping...55*

Dar Arava (Technion - Israel Institute of Technology, Israel); Mohammad Masarwy (Technion, Israel); Samah Khawaled (Technion, Israel Institute of Technology, Israel); Moti Freiman (Technion - Israel Institute of Technology, Israel)

14:20 *Peripheral Artery Stenosis Detection by Wavelet Coherence Analysis...60*

Amit Livneh (Technion-Israel Institute of Technology, Israel); Tomer Heitner and Amir Landesberg (Technion, Israel)

14:40 *Digital biomarkers and machine learning for physiological time series analysis...N/A*

Joachim Behar (Technion, Israel)

15:00 *Point-of-care detection of myocardial injury, a pre-clinical study...63*

Ida Maiorov (Technion, Israel); Amit Livneh (Technion-Israel Institute of Technology, Israel); Roy Efraim and Amir Landesberg (Technion, Israel)

15:20 *Phased Array Antenna Design for Hyperthermia Purpose...66*

Vladimir Vulfin (Electromagnetics Infinity LTD, Israel); Nastya Verhovskiy (Electromagnetics Infinity, Israel); Reuven Shavit (Ben-Gurion University, Israel); Shai Sayfan-Altman (ANSYS inc., Israel); Omri Yannay (ANSYS Inc., Israel)

Monday, November 1 16:10 - 18:00

CS2: Communications for Societal Needs

Room: Grand A

Chair: Itai Dabran (Technion, Israel)

16:10 *Using Machine Learning and Virtual Reality for Orthopedic Treatment and Abnormality Detection Based on Multivariate Time Series Data...70*

Ofir Elmakias and Itai Dabran (Technion, Israel)

16:30 *Improving Driving Safety by Preventing Driver Distraction...75*

Yiftach Richter (Bar - Ilan University, Israel); Oded Malka, Meir Grossman and Aviram Meidan (SaverOne, Israel)

16:50 *Beam-Time Hopping modulation for automotive imaging radars interference mitigation...79*

Arkady Molev-Shteiman (Zeku Inc., USA); Xiao-Feng Qi (Futurewei Technologies, Inc., USA)

17:10 *Programmable Cyber-Infrastructure Architectures for Science Applications...84*

Bijan Jabbari and Jerome Sobieski (George Mason University, USA); Ciprian Popoviciu (East Carolina University, USA)

MSR2: Microwave Systems & Radar 2

Room: Grand C

Chairs: Alon Eilam (Technion - Israel Institute of Technology, Israel), Caleb Fulton (University of Oklahoma, USA)

16:10 CW Localization of a Rotating Scatterer...N/A

Vitali Kozlov, Dmytro Vovchuk and Daniel Gudinetsky (Tel Aviv University, Israel); Dmitry Filonov (Moscow Institute of Physics and Technology, Russia); Pavel Ginzburg (Tel Aviv University, Israel)

16:30 Output Voltage Feedback Control Method for Series-Series Compensated Inductive Wireless Power Transfer Link with Varying Primary Capacitor...89

Andrey Vulfovich (Ben Gurion University, Israel); Mor Peretz and Alon Kuperman (Ben-Gurion University of the Negev, Israel)

16:50 Counterintuitive Constrained Optimization Strategy for Phased-Array Radar Areal Coverage...93

Mitch Haspel (Stochastikos Solutions R&D, Israel)

17:10 The Fresnel Zone Plate for Detection of Arrival...N/A

Mykola Khobzei (Yuriy Fedkovych Chernivtsi National University, Ukraine); Dmytro Vovchuk (Tel Aviv University, Israel); Dmitry Filonov (Moscow Institute of Physics and Technology, Russia); Pavel Ginzburg (Tel Aviv University, Israel)

17:30 Terahertz Active Nanosecond Gigawatt Compressor Thermal Feasibility...99

Maxim Kulygin (Institute of Applied Physics, Russia)

ERF: Emerging and novel RF technologies: From computational techniques to devices, circuits and modules

Organizer: John Papapolymerou

Room 3

Chairs: John Papapolymerou (Michigan State University, USA), Reuven Shavit (Ben-Gurion University, Israel)

16:10 Ultra-Wideband Transmission Lines on Complex Structures via Extendable Aerosol Jet 3D-Printing...103

Xenofon Konstantinou (Michigan State University, USA); Michael Thomas Craton (MIT Lincoln Laboratory, USA); John Albrecht and John Papapolymerou (Michigan State University, USA)

16:30 Fully Aerosol Jet Printed Interconnects and Fill Materials for Millimeter Wave Circuits (Invited)...107

Wesley Spain (Michigan State University, USA)

16:50 Manifold harmonics for Computational Electromagnetics (Invited)...N/A

Abdel Alsnayyan and B. Shanker (Michigan State University, USA)

17:10 Towards High-Power Multipliers Using Diamond Schottky Barrier Diodes...111

Xenofon Konstantinou and Cristian Herrera-Rodriguez (Michigan State University, USA); Junyu Lai (University at Buffalo, USA); Aaron Hardy (Fraunhofer USA Inc., USA); John Albrecht (Michigan State University, USA); Jung-Hun Seo (University at Buffalo, USA); Matthias Muehle (Fraunhofer USA Inc., USA); Timothy Grotjohn and John Papapolymerou (Michigan State University, USA)

17:30 Analog Signal Processing in High Frequency Circuits Using Crossbar Configurations (Invited)...116

Chaoyi He, Anil Korkmaz and Linda Katehi (Texas A&M University, USA); Sam Palermo (Texas A & M University, USA); R. Stanley Williams (Texas A&M University, USA)

CT2: Wireless Apps 2

Organizer: Limor Urfaly

Room 5

AM1: Special Session: Active Metamaterials 1

Organizer: Lea Beilkin-Sirota

Room: Royal H

Chair: Lea Beilkin-Sirota (Tel Aviv University, Israel)

16:10 *Odd Elasticity and Non-Reciprocal Phase Transitions (Invited)...*N/A

Vincenzo Vitelli (University of Chicago, USA)

16:30 *Sound diffusion with modulated acoustic metasurfaces (Invited)...*N/A

Janghoon Kang and Michael R. Haberman (The University of Texas at Austin, USA)

16:50 *Non-Hermitian elastic media: enhanced sensitivity of exceptional points and large non-reciprocity through feedback interactions (Invited)...*N/A

Matheus I Nora Rosa and Massimo Ruzzene (University of Colorado Boulder, USA)

17:10 *Topological Pumping and Phason Dynamics in Modulated Elastic Media (Invited)...*N/A

Matheus I Nora Rosa and Massimo Ruzzene (University of Colorado Boulder, USA)

17:30 *Light-Emitting Phased-Array Metasurfaces (Invited)...*N/A

Jon A Schuller (University of California at Santa Barbara, USA)

UWA2: Special Session: Underwater Acoustics 2

Organizer: Roi Blumberg

Room: Royal I

Chair: Roi D Blumberg (University of Tel Aviv, Israel)

16:10 *Measuring the acoustic scattering of sound by sound using phase front shaping (Invited)...*122

Yair Dimant (Rafael Advanced Defense Systems LTD, Israel); Iris Roger-Eitan and Anna Gleizer (Rafael Advanced Defense System LTD, Israel)

16:30 *Sound field variability and mode coupling in area of coastal wedge in the ocean (Invited)...*127

Boris Katsnelson, Yanyu Jiang and Qianchu Zhang (University of Haifa, Israel)

16:50 *Resonant Acoustic Scattering by Spherical Air-Filled Elastic Shells Submerged in a Fluid: Comparison of Theory and Experiment...*130

Evgeny Chernokozhin (Tel Aviv University, Israel); Iris Roger-Eitan and Anna Gleizer (Rafael Advanced Defense System LTD, Israel); Amir Boag (Tel Aviv University, Israel)

17:10 *An Iterative Physical Optics (IPO) Approach for Scattering by Penetrable Surfaces...*132

Roi D Blumberg (University of Tel Aviv, Israel); Igor Gershenzon (Tel Aviv University, Israel); Yaniv Brick (Ben-Gurion University of the Negev, Israel); Semion Duberstein and Amir Boag (Tel Aviv University, Israel)

17:30 Using a long horizontal multichannel antenna for estimating the compressional sound speed in a compacting passive margin basin settings (Invited)...N/A

Ernst Uzhansky, Yizhaq Makovsky and Boris Katsnelson (University of Haifa, Israel); Shelly Copel and Tom Kazaz (Tel Aviv University, Israel); Omri Gadol (University of Haifa, Israel)

BEM: Bio-electromagnetism

Organizers: Yarden Mazor & Emily Porter

Room: Royal J

Chairs: Yarden Mazor (Tel Aviv University, Israel), Emily Porter (University of Texas at Austin, USA)

16:10 Home monitoring of sleep with a soft EEG, EOG and EMG electrode array (Invited)...N/A

Yael Hanein (Tel-Aviv University, Israel); Anat Mirelman (Sourasky Medical Center, Israel)

16:30 The sub-THz frequency behavior of human sweat ducts (Invited)...N/A

Yuri Feldman (The Hebrew University of Jerusalem, Israel); Paul Ben Ishai (Ariel University, Israel); Alexander Puzenko and Noa Betzalel (The Hebrew University of Jerusalem, Israel)

16:50 Electromagnetic absorption and scattering by coronavirus particles (Invited)...N/A

Ari Sihvola (Aalto University, Finland); Constantinos Valagiannopoulos (Nazarbayev University, Kazakhstan)

17:10 Lung Tumor mimicking models for usability validation of transbronchial Microwave Thermal Ablation procedures (Invited)...135

Laura Farina (Endowave Ltd, Ireland); Giuseppe Ruvio (NUIG and Endowave Ltd., Italy); Martin O'Halloran (National University of Ireland, Galway, Ireland)

17:30 Preliminary study on in-vivo dielectric properties of tissues in the human oral cavity at microwave frequencies (Invited)...140

Donevillon Sladden, Lourdes Farrugia, Roberta Scicluna, Julian Bonello and Charles Sammut (University of Malta, Malta)

Tuesday, November 2

Tuesday, November 2 9:00 - 10:50

CS3: Evolving Communications and Sensing Technologies

Room: Grand A

Chair: Yiftach Richter (Bar - Ilan University, Israel)

9:00 Intelligent Reflecting Surface Configuration Using Adaptive Quantization and Neural Prior...146

Tomer Fireaizen, Dan Ben-David and Shaked Hadad (Technion - Israel Institute of Technology, Israel); Gal Metzger (Tel Aviv University, Israel); Nir Kurland, Sima Etkind, Pavel Lifshits, Yair Moshe

and Israel Cohen (Technion - Israel Institute of Technology, Israel)

9:20 Interference Effects on the MIMO Communications with Partial-Zero-Forcing Receivers...152

Yiftach Richter (Bar - Ilan University, Israel); Itsik Bergel (Bar Ilan University, Israel)

9:40 Clock compression for SAR ADC array with Gaussian input vector...157

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10:00 THz transmission experiments - A data rate of 80 Gbps was demonstrated using Kasami codes...163

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CMOS: Special Session: Millimeter-wave CMOS Circuits for Wideband Communication and Imaging Applications

Organizer: Eran Socher

Room: Grand B

Chair: Eran Socher (Tel Aviv University, Israel)

9:00 A 50 GHz 2 mW Inductor-Less Frequency Divider with Back-Gate Tuning Achieving a Locking Range of 160% in 22 FDSOI...169

Run Levinger, Jasmin Kadry and Alexander Bechtold (Intel, Israel)

9:20 A 204 GHz Power Amplifier with 6.9dBm Psat and 8.8dB Gain in 65nm CMOS Technology...173

Kobi Ben Atar (Hebrew University of Jerusalem, Israel); Eran Socher (Tel Aviv University, Israel)

9:40 A D-Band LNA Using a 22 nm FD-SOI CMOS Technology for Radar Applications...178

Naftali Landsberg, Omer Asaf and Woorim Shin (Intel Corp., Israel)

10:00 A 0.4THz Radiating On-chip Locked Source in 65nm CMOS...181

Firass Mustafa (Tel-Aviv University, Israel); Eran Socher (Tel Aviv University, Israel)

10:20 Wireless communications: disruptive circuits for next generation cellular radios (Invited)...N/A

Francois Rivet (University of Bordeaux, France)

CEM1: Special Session: Advanced Methods in Computational Electromagnetics 1

Organizer: Yaniv Brick

Room: Grand C

Chair: Yaniv Brick (Ben-Gurion University of the Negev, Israel)

9:00 Stable Formulation of the Surface-Volume-Surface Electric Field Integral Equation Free of Low Frequency and Oversampling Breakdowns (Invited)...N/A

Osman Goni and Vladimir Okhmatovski (University of Manitoba, Canada)

9:30 Hierarchical Interpolation Algorithm for Fast Born Approximation Analysis of Scattering by Electrically Large Objects...185

Eden Elbaz and Yaniv Brick (Ben-Gurion University of the Negev, Israel)

9:50 Three-Dimensional Generalized Sources for Enhanced Moment Matrix Compression...N/A

Dor Zvulun (Tel Aviv University, Israel); Yaniv Brick (Ben-Gurion University of the Negev, Israel); Amir Boag (Tel Aviv University, Israel)

10:10 Efficient and kernel-independent Evaluation of Singular Integrals in Volume Integral Equations (Invited)...188

Cedric Münger and Kristof Cools (Delft University of Technology, The Netherlands)

10:30 Efficient MoM simulation of 3D metallic antenna connected to finite ground plane (Invited)...193

Jean Cavillot (Université Catholique de Louvain (UCL), Belgium); Christophe Craeye (UCL, Belgium); Eloy de Lera Acedo and Nima Razavi Ghods (University of Cambridge, United Kingdom (Great Britain))

SCI1: Short Course: Inverse Scattering and EM Imaging - Theory, Techniques, and Applications

Room 3

9:00 Inverse Scattering and EM Imaging - Theory, Techniques, and Applications 1...N/A

Andrea Massa (University of Trento, Italy); Giacomo Oliveri and Paolo Rocca (University of Trento & ELEDIA Research Center, Italy); Marco Salucci (ELEDIA Research Center, Italy)

AP3: Electromagnetic Compatibility

Room 5

Chair: Oren Hartal (& Oren Hartal, Israel)

9:00 Lightning Immunity test per Mil Std 461G CS117, Translated to Engineering terms...197

Oren Hartal (& Oren Hartal, Israel)

9:20 Cable Shielding - how to get the maximum performance by your cable shielding...202

Avi Cohen (EMC Expert, Israel); Oren Hartal (& Oren Hartal, Israel)

9:40 Laser and Target T-Probe Chamber System Electro Magnetic Pulse (EMP) Stability Analysis Under Parameter Variation...210

Ofer Aluf (Netanya Israel, Israel)

10:00 Science and Politics of Base Station Electromagnetic Field Risks...216

Haim Mazar (RF Spectrum and Licensing; ATDI); David John Ball (Centre for Decision Analysis &

Risk Management, United Kingdom (Great Britain))

10:20 *Misunderstandings about radiofrequency electromagnetic field exposure and 5G misinformation...219*

Jack Rowley (GSMA, United Kingdom (Great Britain)); Haim Mazar (ATDI, ITU, Israel)

AMTA: AMTA Session on Antenna Measurements and RCS

Organizer: Lars Foged

Room: Royal H

Chairs: Lars Foged (Microwave Vision Italy, Italy), Pavel Ginzburg (Tel Aviv University, Israel)

9:00 *Revision of the Antenna Measurement Standard IEEE Std 149...222*

Jeffrey Fordham (NSI-MI Technologies, USA); Lars Foged (Microwave Vision Italy, Italy); Vince Rodriguez (NSI-MI AMETEK & University of Mississippi, USA); Justin Dobbins (Raytheon, USA); Vikass Monebhurrin (SUPELEC, France)

9:20 *Recent Progress in Revision of IEEE Std 1720-2012 Recommended Practice for Near-Field Antenna Measurements...224*

Lars Foged (Microwave Vision Italy, Italy); Vince Rodriguez (NSI-MI AMETEK & University of Mississippi, USA); Jeffrey Fordham (NSI-MI Technologies, USA); Justin Dobbins (Raytheon, USA); Vikass Monebhurrin (SUPELEC, France)

9:40 *EurAAP Antenna Measurement Facility Comparisons: past, present and future activities...N/A*

Maria Alberica Saporetti and Lars Foged (Microwave Vision Italy, Italy); Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain)

10:00 *Numerical simulation of a phaseless, non-redundant plane-polar antenna characterization (Invited)...226*

Florindo Bevilacqua (Università di Salerno, Italy); Amedeo Capozzoli and Claudio Curcio (Università di Napoli Federico II, Italy); Francesco D'Agostino, Flaminio Ferrara, Claudio Gennarelli and Rocco Guerriero (University of Salerno, Italy); Angelo Liseno (Università di Napoli Federico II, Italy); Massimo Migliozzi (University of Salerno, Italy); J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom (Great Britain))

10:20 *Numerical results for antenna characterization in a cylindrical scanning geometry using a spheroidal modelling (Invited)...230*

Francesca Borrelli (Università di Napoli, Italy); Amedeo Capozzoli, Claudio Curcio and Angelo Liseno (Università di Napoli Federico II, Italy)

EWT: Special Session: Electromagnetic Wave Theory

Organizer: Yakir Hadad

Room: Royal I

Chair: Yakir Hadad (Tel-Aviv University, USA)

9:00 *Bypassing Gain-Bandwidth Product of LTI Small-Antennas by Temporal Modulation...N/A*

Yakir Hadad (Tel-Aviv University, USA); Amir Shlivinski (Ben-Gurion University of the Negev, Israel)

9:20 *Infrared Range Diffraction Radiation from Two Dielectric Rods Covered with Graphene as a Tool for Sensing the Charged-Particle Beam Position...N/A*

Dariia O. Herasymova (Institute of Radio-Physics and Electronics NASU, Ukraine)

9:40 *Scenarios of non-resonant far-field subwavelength imaging by a simple glass microsphere (Invited)...234*

Constantin Simovski (Aalto University, Finland)

10:00 *Modeling ferroelectric materials with open source finite element software (Invited)...N/A*

Daniel Sjöberg (Lund University, Sweden)

10:20 *Dispersion of Surface Waves above Time-Varying Reactive Boundaries (Invited)...238*

Xuchen Wang, Mohammad Sajjad Mirmoosa and Sergei Tretyakov (Aalto University, Finland)

UWBR: Tutorial: Ultra Wide Band Surveillance Radar

Mark Davis

Room: Royal J

9:00 *Ultra Wideband Surveillance Radar*

Mark E Davis (Medavis Consulting, USA)

Tuesday, November 2 11:10 - 13:00

CS4: Communication Theory, Software and Techniques

Room: Grand A

Chair: Naftali Chayat (Vayyar, Israel)

11:10 *Generative Adversarial Network and End-to-End Learning for Optical Fiber Communication Systems Limited by the Nonlinear Phase Noise...241*

Adar Cohen (Ben Gurion University of the Negev, Israel); Stanislav Derevyanko (Ben-Gurion University of the Negev, Israel)

11:30 *The Filtered Gaussian Primitive Diamond Channel...247*

Asif Katz (Technion - Israel Institute of Technology, Israel); Michael Peleg (Rafael Ltd. & Technion - Israel Institute of Technology, Electrical Engineering, Israel); Shlomo (Shitz) Shamai (The Technion, Israel)

11:50 *Neural Network-Based Digital Predistortion and Self-Interference Cancellation in a Quadrature Balanced Full Duplex Transmitter...252*

Erez Loebl and Nimrod Ginzberg (Technion, Israel); Emanuel Cohen (Technion Institute of Technology, Israel)

12:10 Authentication of Underwater Acoustic Transmissions via Machine Learning Techniques...255

Laura Bragagnolo and Francesco Ardizzone (University of Padova, Italy); Nicola Laurenti (University of Padova & CNIT, Italy); Paolo Casari (University of Trento, Italy); Roei Diamant (University of Haifa, Israel); Stefano Tomasin (University of Padova, Italy)

12:30 Intelligent Network Edge with Distributed SDN for the Future 6G Network...261

Steve Weinstein (CTTC Group, USA); Yuan-Yao Lou (Purdue University, USA); T. Russell Hsing (National Chiao Tung University, USA)

RF1: Advances in RFIC and MMIC

Room: Grand B

Chair: Aleksey Dyskin (Technion - Israel Institute of Technology, Israel)

11:10 Q-band compact amplifier with +22 dB gain, ± 0.5 dB flatness over 40% Fractional Bandwidth in Tower 130 nm CMOS...266

Samuel Jameson, Nadav Buadana, Zion Eliatim, Amitay Wolfman, Isaac Sarusi and Ofer Shaham (Rafael, Israel)

11:30 Chipset for K-Band Stepped FMCW MIMO Radar Array System for Breast Cancer Detection...270

Fabian Binde, Maximilian Hollenbach and Gleb Manokhin (OVGU - Die Otto-von-Guericke-Universität Magdeburg, Germany); Vadim Issakov (Technische Universität Braunschweig, Germany)

11:50 Design and measurements of a 28 GHz High-Linearity LNA in 45nm SOI-CMOS...275

Vincent Lammert (Infineon Technologies AG/Friedrich-Alexander University Erlangen-Nuremberg, Germany); Paulius Sakalas (Technische Universität Dresden, Germany & Semiconductor Physics Institute, Baltic Institute of Advanced Technology, Lithuania); Andreas Werthof (Infineon Technologies AG, Germany); Robert Weigel (Friedrich-Alexander Universität Erlangen-Nürnberg, Germany); Vadim Issakov (Infineon Technologies AG, Germany)

12:10 Spiking Neural Networks based Rate-Coded Logic Gates for Automotive Applications in BiCMOS...280

Hendrik Magnus Lehmann (Infineon Technologies AG & TU Braunschweig, Germany); Julian Hille (Infineon Technologies AG / TU Munich, Germany); Cyprian Grassmann (Infineon, Germany); Vadim Issakov (Technische Universität Braunschweig, Germany)

12:30 Compact Stacked Rugged GaN Low-Noise Amplifier MMIC...286

Evelyne Kaule (Brandenburg University of Technology Cottbus-Senftenberg, Germany); Peng Luo (Chengdu Danxi Technology Co., China); Cristina Andrei (Brandenburg University of Technology Cottbus-Senftenberg, Germany); Serguei Chevtchenko (Ferdinand-Braun-Institut, Leibniz-Institut für Höchstfrequenztechnik, Germany); Matthias Rudolph (Brandenburg University of Technology, Germany)

CEM2: Special Session: Advanced Methods in Computational Electromagnetics 2

Organizer: Yaniv Brick

Room: Grand C

Chair: Yaniv Brick (Ben-Gurion University of the Negev, Israel)

11:10 Isogeometric boundary integral solvers and their potential benefits (Invited)...N/A

Abdel Alsnayyan and B. Shanker (Michigan State University, USA)

11:30 A numerical study of hierarchical bases preconditioners for integral equations (Invited)...N/A

Simon B Adrian (Universität Rostock, Germany); Danijel Jukic (Technische Universität München, Germany); Francesco Andriulli (Politecnico di Torino, Italy)

11:50 Replacement of the 2nd Order Time Domain Vector Wave Equation by a 1st Order Complex Equation...N/A

Raphael Kastner (Tel Aviv University, Israel)

12:10 Computing Eigenvalues of Waveguides by a Modified Method of Auxiliary Sources (Invited)...289

Minas Kouroublakis (National Technical University of Athens, Greece); Nikolaos L. Tsitsas (Aristotle University of Thessaloniki, Greece); Georgios Fikioris (National Technical University of Athens, Greece)

12:30 Augmentation of Integral Equations for Low-Frequency Analysis of Electromagnetic Problems (Invited)...N/A

Mei Song Tong (Tongji University, China)

SCI2: Short Course: Inverse Scattering and EM Imaging - Theory, Techniques, and Applications 2

Room 3

11:10 Inverse Scattering and EM Imaging - Theory, Techniques, and Applications 2...N/A

Andrea Massa (University of Trento, Italy); Giacomo Oliveri and Paolo Rocca (University of Trento & ELEDIA Research Center, Italy); Marco Salucci (ELEDIA Research Center, Italy)

SP1: Signal Processing & Imaging 1

Room 5

Chair: Arie Yeredor (Tel-Aviv University, Israel)

11:10 Self-Localization Algorithms for Wireless Sensor Networks in the Smart City...294

Liat Peled-Eitan and Eran Greenberg (RAFAEL, Israel)

11:30 A Novel Approach for Characterization of Transient Signals Using the Phase Diagram Features...299

Denis Stanescu (Military Technical Academy Ferdinand I, Romania); Angela Digulescu (Military Technical Academy, Romania); Cornel Ioana (Institute National Polytechnique de Grenoble, France); Alexandru Șerbănescu (Military Technical Academy Ferdinand I, Romania)

11:50 Sparse Wavelet Transform Based on Weight Vector Iteration with Minimum L1 Norm for Ground Penetrating Radar...305

Renzhou Gui, Hao Liang, Juan Li and Mei Song Tong (Tongji University, China)

12:10 Compressive Sensing based DOA Estimation for Multi-path Environment...309

Parvatam Rajith Bhargav, Nagaraju L and Kishore Kumar Puli (National Institute of Technology Andhra Pradesh, India)

AP4: Electromagnetic Propagation

Room: Royal H

Chair: Boris Malomed (Tel Aviv University, Israel)

11:10 Nonlinear wave propagation under the action of fractional diffraction...N/A

Boris Malomed (Tel Aviv University, Israel)

11:30 Estimation of Cross polarization due to rain over some stations in South Africa...314

Phillimon Makibinyane (Tshwane University of Technology, South Africa)

11:50 Analysis of High-Frequency Electromagnetic Wave Propagation in the Inshore Shallow Seawater with Inhomogeneous Medium...314

Renzhou Gui, Juan Li and Mei Song Tong (Tongji University, China)

12:10 Spectrally Efficient Carrier Waveforms for Fiber Optical Communication Systems Employing the Nonlinear Fourier Transform...N/A

Muyiwa B Balogun (University of the Witwatersrand, South Africa); Stanislav Derevyanko (Ben-Gurion University of the Negev, Israel)

12:30 Dissipative Soliton Dynamics in Graphene Embedded Split-Ring Resonator Based Hybrid Metamaterial...N/A

Soumendu Jana (Thapar University, India); Neeraj Sharma (Thapar Institute of Engineering and Technology, India)

AM2: Special Session: Active Metamaterials 2

Organizer: Lea Beilkin-Sirota

Room: Royal I

Chair: Lea Beilkin-Sirota (Tel Aviv University, Israel)

11:10 Active Topoelectrical Circuits...N/A

Ronny Thomale (Julius-Maximilians-Universität Würzburg, Germany)

11:30 Anomalous non-reciprocal topological networks as a robust microwave platform...N/A

Zhe Zhang (EPFL, Switzerland); Pierre Delplace (Univ Lyon, Switzerland); Romain Fleury (EPFL, Switzerland)

11:50 Elastic wave propagation in reconfigurable phononic waveguides...N/A

Yan-Feng Wang (Tianjin University, China); Vincent Laude (FEMTO-ST Institute University of Franche-Comté, France); Yue-Sheng Wang (Tianjin University, China)

12:10 Temporal Metamaterials with Lorentzian Dispersion...N/A

Diego M Solís (University of Pennsylvania, USA); Raphael Kastner (Tel Aviv University, Israel); Nader Engheta (University of Pennsylvania, USA)

12:30 Exploiting temporal boundaries in temporal metamaterials for real-time control of electromagnetic wave propagation...N/A

Victor Pacheco-Peña (Newcastle University, United Kingdom (Great Britain)); Nader Engheta (University of Pennsylvania, USA)

AP2: Antenna Theory and Design

Room: Royal J

Chair: Haim Matzner (HIT-Holon Institute of Technology, Israel)

11:10 Beam Broadening by Phase Tapering in Wideband Electronically Scanned Arrays...N/A

Lior Maman, Shlomo Zach and Amir Boag (Tel Aviv University, Israel)

11:30 A Balanced, Series Fed Horn Array Antenna...317

Haim Matzner (HIT-Holon Institute of Technology, Israel); Ely Levine (AFEKA, Academic College of Engineering, Israel)

11:50 A Dual-Polarized Horn Antenna for mm Wave Applications...320

Haim Matzner (HIT-Holon Institute of Technology, Israel); Ely Levine (AFEKA, Academic College of Engineering, Israel)

12:10 A Non-Invasive Feed Approach to Excite the Electric Monopole Mode of a Dielectric Resonator Antenna...323

Praveen Kumar AV (BITS Pilani Rajasthan, India)

12:30 Analysis of Mutual Coupling Algorithms for Dipole Array...326

Ellie Langley (University of Oklahoma, USA)

Tuesday, November 2 14:20 - 16:10

CS5: Future of Wireless Communications

Organizer: Irving Kalet

Room: Grand A

Chair: Irving Kalet (Technion, Israel)

14:20 On information rates over a binary-input filtered Gaussian channels...330

Michael Peleg (Rafael Ltd. & Technion - Israel Institute of Technology, Electrical Engineering, Israel); Tomer Michaeli (Technion, Israel); Shlomo (Shitz) Shamai (The Technion, Israel)

15:00 Interference Management in Wireless New Radio Links Utilizing Multi-User MIMO...N/A

Avner Elgam, Yael Balal and Yosef Pinhasi (Ariel University, Israel)

15:20 *The Future of Satellite Communications...N/A*

Moshe Golani (Spacecom Israel, Israel)

15:40 *Panel Discussion: The Future of Wireless Communications...N/A*

Irving Kalet (Technion, Israel)

RF2: Passive Elements and Interconnects

Room: Grand B

Chair: Eran Socher (Tel Aviv University, Israel)

14:20 *Hybrid C-Tuner IC for 40V/80V Antenna Aperture Tuning Applications...334*

Oguzhan Oezdamar (University of Erlangen-Nuremberg, Germany); Semen Syroiezhin (Eesy IC GmbH, Germany); Robert Weigel (Friedrich-Alexander Universität Erlangen-Nürnberg, Germany); Amelie Hagelauer (Technical University of Munich, Germany); Valentyn Solomko (Infineon Technologies, Germany)

14:40 *Considerations for Capacitance Measurements of Antenna Tuning RF Switches on Board...338*

Valentyn Solomko (Infineon Technologies, Germany); Oguzhan Oezdamar (University of Erlangen-Nuremberg, Germany); Danial Tayari (Infineon Technologies AG, Germany); Matthias Voelkel (University Erlangen/Nuermberg, Germany); Simon Weiss (Infineon Technologies AG, Germany); Jochen Essel (University of Erlangen-Nuremberg, Germany); Robert Weigel (Friedrich-Alexander Universität Erlangen-Nürnberg, Germany); Amelie Hagelauer (Technical University of Munich, Germany)

15:00 *A Novel Ultra-Broadband and Low-Cost Termination Concept Based on a Dual-Layer SIW Topology...344*

Christoph Birkenhauer (LHFT, Friedrich-Alexander-University Erlangen-Nuremberg, Germany); Martin Vossiek (LHFT, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany)

15:20 *Hardware Protected RFID Tag Sustainable Against Long-Range Attacks...N/A*

Dmitry Dobrykh (ITMO University, Russia & Tel Aviv University, Israel); Dmitry Filonov (Moscow Institute of Physics and Technology, Russia); Alexey P. Slobozhanyuk (ITMO University & Australian National University, Russia); Pavel Ginzburg (Tel Aviv University, Israel)

AP6: Numerical and computational methods in EM

Room: Grand C

Chairs: Yaniv Brick (Ben-Gurion University of the Negev, Israel), Ludger Klinkenbusch (Christian-Albrechts-Universitaet zu Kiel, Germany)

14:20 *Micro-Doppler signatures of Near-field Coupled Rotors...N/A*

Dmytro Vovchuk and Vitali Kozlov (Tel Aviv University, Israel); Sergei Kosulnikov (Aalto University, Finland); Pavel Ginzburg (Tel Aviv University, Israel)

14:40 *Prediction of scattering from open ended cavities: numerical approaches and measurements...N/A*

Michael Katsav, Yonatan Frairich, Matan Kahanov, Ilan Kaplon and Jochanan Reis (Rafael, Israel)

15:00 *Electromagnetic Probing of Canonical Objects by Uniform Complex-Source Beams...N/A*

Ludger Klinkenbusch (Christian-Albrechts-Universitaet zu Kiel, Germany)

15:20 *Integral Representations for Modeling Core-shell Particle-based Photonics Applications...349*

Konstantinos Katsinos, Georgios Kolezas, Grigorios Zouros and George Fikioris (National Technical University of Athens, Greece)

15:40 *Advanced Spherical Near-field Postprocessing Techniques...353*

Fernando Rodríguez Varela (Universidad Politécnica de Madrid, Spain); Belen Galocha (Universidad Politecnica de Madrid, Spain); Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain)

SCI3: Short Course: Inverse Scattering and EM Imaging - Theory, Techniques, and Applications 3

Room 3

14:20 *Inverse Scattering and EM Imaging - Theory, Techniques, and Applications 3...N/A*

Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Andrea Massa (University of Trento, Italy); Paolo Rocca (University of Trento & ELEDIA Research Center, Italy); Marco Salucci (ELEDIA Research Center, Italy)

SP2: Signal Processing & Imaging 2

Room 5

Chair: Arie Yeredor (Tel-Aviv University, Israel)

14:20 *Non-Parametric Data Augmentations Improve Deep-Learning based Brain Tumor Segmentation...357*

Hadas Ben Atya (Technion - IIT, Israel); Ori Rajchert (Technion-IIT, Israel); Liran Goshen (Philips Haifa, Israel); Moti Freiman (Technion - Israel Institute of Technology, Israel)

14:40 *High Accuracy Distance Measurement Using Frequency Comb...361*

Dana Maklada, Yasmine Obeid-Zoabi, Alon Eilam and Michael Dikshtein (Technion - Israel Institute of Technology, Israel)

15:00 *Neoteric Method for MMW Detection by GDD-LTF Combination as Single Pixel for Focal Plane Arrays...N/A*

Arun Ramachandra Kurup (Ariel University, Israel); Daniel Rozban and Lidor Kahana (Ariel University, Israel); Natan Kopeika and Yitzhak Yitzhaky (Ben-Gurion University of the Negev, Israel); Amir Abramovich (Ariel University, Israel)

15:20 *Performance comparison of Orthogonal matching pursuit and Novel Incremental Gaussian Elimination OMP Reconstruction Algorithms for Compressive Sensing...367*

V H Prasad Reddy and Kishore Kumar Puli (National Institute of Technology Andhra Pradesh, India)

QA1: Special Session: Quantum Antennas and Photonic Quantum Sensing 1

Organizers: Gregory Slepyan & Dmitri Mogilevtsev

Room: Royal H

Chair: Gregory Slepyan (Tel Aviv University, Israel)

14:20 Quantum Simulations: Challenges in the Nano Era...N/A

Amir Natan and Yoram Shapira (Tel Aviv University, Israel); Vitaliy Lomakin (UCSD, USA); Amir Boag (Tel Aviv University, Israel)

14:50 Efficient Multi-Domain Schemes for Large Quantum Systems' Calculations...373

Matan Shapira, Amir Boag and Amir Natan (Tel Aviv University, Israel)

15:10 Optical Forces and Light Scattering In Carbon Nanotubes...378

Tomer Berghaus and Touvia Miloh (Tel Aviv University, Israel); Oded Gottlieb (Technion - Israel Institute of Technology, Israel); Gregory Slepyan (Tel Aviv University, Israel)

15:30 Multimode Quantum Light Scattering: Method of Characteristic Modes...382

Ilay Levie and Gregory Slepyan (Tel Aviv University, Israel); Dmitri Mogilevtsev (Institute of Physics, National Academy of Sciences of Belarus, Belarus); Amir Boag (Tel Aviv University, Israel)

15:50 H-Polarized Terahertz Wave Scattering from On-Substrate Graphene Strip Grating: Electromagnetically Induced Transparency...385

Fedir Yevtushenko (Institute of Radio-Physics and Electronics NASU, Ukraine)

AM3: Special Session: Active Metamaterials 3

Organizer: Lea Beilkin-Sirota

Room: Royal I

Chair: Lea Beilkin-Sirota (Tel Aviv University, Israel)

14:20 Non-Hermitian mechanics (Invited)...N/A

Corentin Coulais (University of Amsterdam, The Netherlands)

14:40 Phase-change reconfigurable metasurfaces (Invited)...N/A

Mikhail Mikhail Shalaginov (Massachusetts Institute of Technology, USA)

15:00 Active elastocapillarity in soft solids with negative surface tension (Invited)...N/A

Anton Souslov (University of Bath, United Kingdom (Great Britain))

15:20 Temporal acoustic cloaking using real-time reconfigurable medium...N/A

Lea Beilkin-Sirota and Or Lasri (Tel Aviv University, Israel)

15:40 Towards a Smart Active Adaptable Meta-Material for Eco Cancellation (Invited)...N/A

Yair Tamar (Rafael, Israel)

Tuesday, November 2 16:20 - 18:00

IF: Interactive Forum

Room: Royal J

Performance of ARIMA Modelling on Sub-tropical rain attenuation at Ka-band terrestrial link in Kwazulu-Natal, South Africa...389

Adewumi Oluwatoyin Ayo, SA (Tshwane University of Technology & South Africa, South Africa)

Analysis of a Linear Modified Yagi-Uda array using Particle Swarm Optimization for the Radiation Pattern Synthesis...395

Crislane P. do Nascimento Silva (Federal University of Pernambuco, Brazil); Daniel Felipe L. de Melo, José M. A de Oliveira and Adriel Lins Alves da Silva (Universidade Federal de Pernambuco, Brazil); Antonio Belfort (Federal University of Pernambuco, Brazil); Amanda Barboza (Federal Institute of Paraíba, IFPB, Brazil); Daniel L. S. do Nascimento and Daniel de Filgueiras Gomes (Universidade Federal de Pernambuco, Brazil); Marcos Melo (Federal University of Pernambuco, Brazil); Bruno Agra Kleinau (Escola Politécnica de Pernambuco & Companhia Energética de Pernambuco, Brazil); Ricardo J. F. P. V. de Almeida (Neoenergia, Brazil)

Innovative reconfigurable Metasurface reflector for Ka band wireless communication...N/A

Efi Rahamim (Ariel University, Israel)

Criterion for Comparison and Typology Optimization of Nanoantennas: Application to Rectenna Configurations of Bow-tie, Dipole, Spiral, Log-Periodic, Meander, Nonlinear Dipole Meander and Two-Cane...N/A

Nelmo Cyriaco (UNICAMP, Brazil); Marcelo Villalva (University of Campinas, Brazil); Luiz C. Kretly (R Conselheiro Paula Souza 606, Brazil & University of Campinas, Brazil)

The Quadrature 90° Hybrid Miniaturization at 24 GHz Band...401

Vladimir Vulfin (Electromagnetics Infinity LTD, Israel); Reuven Shavit (Ben-Gurion University, Israel); Omer Tutian (SCE, Israel)

Induced Piezoelectric High-Overtone Bulk Acoustic Resonator (HBAR) with Adaptable High Q factor...N/A

Kongbrailatpam Sandeep Sharma (CASEST, School of Physics, University of Hyderabad, India); James Raju K c (University of Hyderabad & School of Physics, India); Pundareekam Goud J (University of Hyderabad, India)

Three-Dimensional Metallic Electromagnetic Bandgap Structure for a Selective Shielding at the Microwave Band: Design and Simulation...403

Hiuri S. de Noronha (UNICAMP - FEEC, Brazil); Luiz C. Kretly (R Conselheiro Paula Souza 606, Brazil & University of Campinas, Brazil)

Electromagnetic Shielding of a Bluetooth Antenna for Electric Vehicles Applying Metamaterial Structures...408

Geyse M. B. Silva (University of Campinas, Brazil); Luiz C. Kretly (R Conselheiro Paula Souza 606, Brazil & University of Campinas, Brazil)

Practical Deployment of Synthetic Phased-Array and Multi-beam Antenna Sensors for 5G and Beyond-5G Mobile-Wireless Network...413

Eugene Ngai (Hann-Jann (RF-Tech) Consultancy, USA); Reuven Shavit (Ben-Gurion University, Israel)

Modeling and Analysis of Spatial Distributions of Users in Massive MIMO Systems...418

Dajiang Li, Naren Anand and Jacek Ilow (Dalhousie University, Canada)

Millimeter wave reconfigurable metasurface Intelligent Reflecting Surface based on piezoelectric crystal for 5th and 6th generation of wireless communication...N/A

Asaf Barom (Ariel University, Israel)

Complete IoT Solution for Smart Cities Using LoRaWAN Technology...422

Aviel Glam (Rafael Advance Defense Systems Ltd., Israel); Barak Farbman (Rafael & Technion - Israel Institute of Technology, Israel); Itzik Ashkenazi (Technion, Israel)

Investigating the Hammerstad - Jensen Formula for High Permittivity Materials...N/A

Motti Haridim (Holon Institute of Technology, Israel); Haim Matzner (HIT-Holon Institute of Technology, Israel); Mulkan Adgo (The Hebrew University of Jerusalem, Israel); Moshe Danueli (Merchavim Institute of R&D in Negev, Israel)

Broadband 180 degrees Hybrids and BALUN Based on Parallel- Strips...427

Ely Levine (AFEKA, Academic College of Engineering, Israel); Haim Matzner (HIT-Holon Institute of Technology, Israel)

Information-wave interactions of ultra-low intensity electromagnetic fields with biological systems...431

Yuliia Voloshyn, Sergii Kulish and Vjacheslav Oliynyk (National Aerospace University, Ukraine)

Monitoring Poultry Embryo Development During Incubation Process Via Electro-Optical Signals...438

Yair Adar (LIVEgg (2015) Ltd. & Jerusalem College of Technology, Israel); Yosef Golovachev (Jerusalem College of Technology, Jerusalem, Israel)

Modified Newton-Raphson Method to Achieve Variable Step Hill-Climbing Algorithm for Maximum Power Point Tracking...442

Jorge Carvalho (University of Campinas, Brazil); Luiz C. Kretly (R Conselheiro Paula Souza 606, Brazil & University of Campinas, Brazil)

Versatile Low-Cost Microwave Helmet Brain Sensor for Monitoring Parkinson Disease...448

Eugene Ngai (Hann-Jann (RF-Tech) Consultancy, USA); Reuven Shavit (Ben-Gurion University, Israel)

An Ultra-wideband Antenna for High-Gain Tunneling Radar Based on Left Hand Rule...452

Renzhou Gui, Zheng Huilin and Mei Song Tong (Tongji University, China)

Wednesday, November 3

Wednesday, November 3 9:00 - 10:50

SCA1: Short Course: Array Antenna Synthesis - Theory, Techniques, and Applications 1

Room 3

9:00 *Array Antenna Synthesis - Theory, Techniques, and Applications 1...N/A*

Nicola Anselmi (ELEDIA Research Center, Italy); Andrea Massa (University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Lorenzo Poli (ELEDIA Research Center, University of Trento, Italy); Paolo Rocca (University of Trento & ELEDIA Research Center, Italy)

QA2: Special Session: Quantum Antennas and Photonic Quantum Sensing 2

Organizers: Gregory Slepyan & Dmitri Mogilevtsev

Room 4

Chair: Gregory Slepyan (Tel Aviv University, Israel)

9:00 *Resonances in Quantum Scattering Theory and Electromagnetics (Invited)...455*

Yury Shestopalov (University of Gävle, Sweden)

9:20 *Modern compressive tomography for quantum information science (Invited)...N/A*

Yong Siah Teo (Seoul National University, Korea (South)); Luis Sanchez-Soto (Complutense University of Madrid, Spain)

9:40 *Toward classical emulation of quantum states with coherent mixtures...459*

Dmitri Mogilevtsev (Institute of Physics, National Academy of Sciences of Belarus, Belarus); Alexander Mikhalychev (IPNASB, Belarus)

10:00 *Coupling Quantum Antennas to Fibers and Waveguides (Invited)...N/A*

Girish Agarwal (Texas A&M University & Texas A & M University, USA)

10:20 *Characterization of Individual Hollow Spheres Metaatoms in Microwaves (Invited)...461*

Dzmitry Bychanok (Research Institute for Nuclear Problems BSU, Belarus); Alexander Zharov and Pauline Blyweert (Universite De Lorraine, Belarus); Ian Korobov, Aliaksei Sukhotski and Gleb Gorokhov (Institute for Nuclear Problems BSU, Belarus); Vanessa Fierro (Institut Jean Lamour, UMR CNRS - Université de Lorraine, France); Polina Kuzhir (Institute of Nuclear Problem at Belarusian State University, Belarus); Alain Celzard (Institut Jean Lamour, UMR CNRS - Université de Lorraine, France)

EPS1: Electronic Packaging & Thermal Management 1

Room 5

Chair: Aviv Ronen (Rafael, USA)

9:00 - 9:15 1 Rafael Ayelet Belous Israel ayeletb1@rafael.co.il Sealing Challenges of the Hi-End MEMS Sensors

9:15 - 9:30 2 Elbit - Elop Yuval Ulman Israel Yuval.Ullman@elbitsystems.com Design and optimization of Phase Change Material cooling solutions by utilizing 3D printing technologies

9:30 - 9:45 3 NVIDIA Marisa Sheffer Israel msheffer@nvidia.com XL Flip Chip Ball Grid Array (FCBGA) package development, challenges and solutions

9:45 - 10:00 4 Phononics Shye Shapira Israel shyesh@towersemi.com Performance Enhancement of Integrated Circuits and Power Devices via Embedded Diamond Heat Management

10:00 - 10:15 5 PCB Yaniv Maydar Israel yaniv@pcb-technologies.com SiP (System in Package) - More than Moore

10:15 - 10:30 6 ANSYS Omri Yannay Israel omri.yannay@ansys.com Process Simulation in Micro-Electrical Mechanical Systems. Structural and Thermal State During Photo-Lithography Layup of a Pirani Sensor

10:30 - 10:50 7 BGU Gennady Ziskind Israel gziskind@bgu.ac.il In memoriam - Prof. Avi Bar-Cohen

9:00 *The Hidden Challenges in Manufacturing variations...465*

Shai Sayfan-Altman (ANSYS inc., Israel); Roe Bloch (Marvell, Israel); Alex Manukovsky (Intel, Israel)

9:15 *Performance Enhancement of Integrated Circuits and Power Devices via Embedded Diamond Heat Management...470*

Shye Shapira (Phononics, Israel)

RF3: Solid State Emerging Technologies and Techniques

Room: Royal H

Chair: Emanuel Cohen (Technion Institute of Technology, Israel)

9:00 *Quantum Technologies and Cryogenic Calibration...N/A*

Gabe Lenetsky (Keysight Technologies, USA)

9:20 *Nanosecond Gigawatt Compressor Excitation Dynamics...473*

Maxim Kulygin (Institute of Applied Physics, Russia)

9:40 *Design and Optimization of TeraFET Spectrometer...477*

Xueqing Liu (Rensselaer Polytechnic Institute, USA); Trond Ytterdal (Norwegian University of Science and Technology, Norway); Michael Shur (Rensselaer Polytechnic Institute, USA)

10:00 *Current Driven Plasma Instability in Graphene-FETs with Coulomb Electron Drag...482*

Maxim Ryzhii (University of Aizu, Japan); Victor Ryzhii (Tohoku University, Japan and Institute of Ultra High Frequency Semiconductor Electronics of RAS, Russia); Taiichi Otsuji (Tohoku University, Japan); Vladimir Mitin (University at Buffalo, USA); Michael Shur (Rensselaer Polytechnic Institute, USA)

10:20 *A New CMOS Sensing System for Radon and Alpha Radiation...N/A*

Roy Shor (Technion - Israel Institute of Technology, Israel); Yael Nemirovsky (Technion_Israel)

institute of Technology, Israel)

AP5: Metamaterials, Metasurfaces

Room: Royal I

Chair: Ariel Epstein (Technion - Israel Institute of Technology, Israel)

9:00 Polarization consideration of 2-D beam-steering metasurface reflector at Ka-band for wireless communication...486

David Rotshild and Amir Abramovich (Ariel University, Israel)

9:20 Flat Lens Antenna Design Based on Metasurfaces with Printed Elements using Tensor Surface Impedance Model...491

Yarden Tzabari and Reuven Shavit (Ben-Gurion University, Israel)

9:40 Metasurface Based Compact Dual Band Antenna with Wide Bandwidths...497

Sonal Shirish Gahankari (IIT Bombay, India); Jayanta Mukherjee (Indian Institute of Technology Bombay, India)

CM1: CELEMON 1

Organizer: Hagit Messer-Yaron

Room: Royal J

Chairs: Hagit Messer (Tel-Aviv University, Israel), Remko Uijlenhoet (Delft University of Technology & Wageningen University & Research, The Netherlands)

9:00 Opening Remarks...N/A

Pinhas Alpert (Tel Aviv University, Israel); Vojtech Bares (Czech Technical University in Prague, Czech Republic)

9:20 Tropical CML rainfall monitoring in Sri Lanka...N/A

Aart Overeem (Royal Netherlands Meteorological Institute & Delft University of Technology, The Netherlands); Hidde Leijnse (Royal Netherlands Meteorological Institute & Wageningen University & Research, The Netherlands); Thomas Van Leth (Wageningen University & Research, The Netherlands); Linda Bogerd (Wageningen University & Research & Royal Netherlands Meteorological Institute, The Netherlands); Jan Priebe and Daniele Tricarico (GSM Association, United Kingdom (Great Britain)); Arjan Droste (Wageningen University & Research, The Netherlands); Remko Uijlenhoet (Delft University of Technology & Wageningen University & Research, The Netherlands)

9:40 Country-wide rainfall estimation with CMLs and via a combination of CMLs and weather radar: Recent achievement and upcoming challenges in Germany...N/A

Christian Chwala (Karlsruhe Institute of Technology, Germany); Maximilian Graf (Karlsruhe Institute of Technology & Institute of Meteorology and Climate Research, Germany); Julius Polz, Luca Glawion and Sebastian Rothermel (Karlsruhe Institute of Technology, Germany); Tanja Winterrath (Deutscher Wetterdienst, Germany); Gerhard Smiatek and Harald Kunstmann (Karlsruhe Institute of Technology, Germany)

10:00 *Measuring tropical rainfall with a dense Commercial Microwave Link network in Nigeria...N/A*

Arjan Droste (Wageningen University & Research, The Netherlands); Aart Overeem (Royal Netherlands Meteorological Institute & Delft University of Technology, The Netherlands); Jan Priebe and Daniele Tricarico (GSM Association, United Kingdom (Great Britain)); Linda Bogerd (Wageningen University & Research & Royal Netherlands Meteorological Institute, The Netherlands); Hidde Leijnse (Royal Netherlands Meteorological Institute & Wageningen University & Research, The Netherlands); Remko Uijlenhoet (Delft University of Technology & Wageningen University & Research, The Netherlands)

10:20 *Hydrological applications of microwave links in mountain and peri-urban catchments: a case study in Italy...N/A*

Greta Cazzaniga, Carlo De Michele, Michele D'Amico, Cristina Deidda and Antonio B Ghezzi (Politecnico di Milano, Italy); Roberto Nebuloni (Ieiti - Cnr, Italy)

10:40 *The first operational platform of rainfall estimation using microwave links in China...N/A*

Xichuan Liu (National University of Defense Technology, China); Mingzhong Zou (Jiangyin River Management Division, China)

Wednesday, November 3 11:10 - 13:00

SCA2: Short Course: Array Antenna Synthesis - Theory, Techniques, and Applications 2

Room 3

11:10 *Array Antenna Synthesis - Theory, Techniques, and Applications 2...N/A*

Nicola Anselmi (ELEDIA Research Center, Italy); Andrea Massa (University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Lorenzo Poli (ELEDIA Research Center, University of Trento, Italy); Paolo Rocca (University of Trento & ELEDIA Research Center, Italy)

CSW1: Special Session: Coupling of Spin Waves with Microwave and Optical Radiation 1

Organizers: Grigorios Zouros & Evangelos Almpanis

Room 4

Chairs: Evangelos Almpanis (National Centre for Scientific Research, Greece), Vitaliy Lomakin (UCSD, USA)

11:10 *Nanophotonics and THz photonics for advanced spin excitation (Invited)...N/A*

Vladimir I Belotelov (Russian Quantum Center & Lomonosov Moscow State University, Russia)

11:40 *Tailoring ferromagnetic resonance in bicomponent artificial spin ices (Invited)...500*

Mojtaba Taghipour Kaffash, Sergi Lendinez and Benjamin Jungfleisch (University of Delaware, USA)

12:00 Garnet Wires as Optomagnonic Cavities...504

Grigorios Zouros (National Technical University of Athens, Greece); Evangelos Almpanis (National Centre for Scientific Research, Greece); Konstantinos Katsinos (National Technical University of Athens, Greece)

12:20 Enhancing microwave-to-optical conversion and vice versa through anti-PT symmetric spin systems (Invited)...N/A

Girish Agarwal (Texas A&M University & Texas A & M University, USA)

EPS2: Electronic Packaging & Thermal Management 2

Room 5

Chair: Gennady Ziskind (Ben-Gurion University of the Negev, Israel)

11:10 - 11:25 8 Elbit - Elop Galit Zilberman Israel galit.zilberman@elbitsystems.com From Nano to Bio - Eco Friendly coatings

11:25 - 11:40 9 Copprint Ofer Shohat Israel ofer@copprint.com Conductive Copper ink printing for the additive manufacturing of low cost and sustainable electric circuits and antennas

11:40 - 11:55 10 Nano Dimension Ziv Cohen Israel ziv@nano-di.com Additively Manufactured Electronics (AME) for multilayers applications

11:55 - 12:10 11 Rafael Ronen Maimon Israel ronenma@rafael.co.il The impact of adhesives mechanical properties on the behavior of a closed loop MEMS accelerometer

12:10 - 12:25 12 Rafael Jonathan Rothschild Israel jonathanr@rafael.co.il An empirical method for determining the reliability of die-attach joints in hybrid modules

12:25 - 12:40 13 Bar-Ilan University Doron Naveh Israel Doron.Naveh@biu.ac.il Graphene in thermal management

12:40 - 13:00 14 Technion Eilam Yalon Israel eilamy@gmail.com Sub-micron spatially resolved thermometry

W5G: Workshop: Advances in Full Duplex and FDD Integrated Systems for 5G Radios

Emanuel Cohen

Room: Royal H

11:10 Advances in Full Duplex and FDD Integrated Systems for 5G Radios...N/A

Emanuel Cohen (Technion Institute of Technology, Israel)

SM1: Special Session: Scattering Management with Metamaterials and High index Composites 1

Organizer: Pavel Ginzburg

Room: Royal I

Chair: Pavel Ginzburg (Tel Aviv University, Israel)

11:10 *How Hybridized Meta-Atoms and Kerker effect could be used for molding RF fields in Ultra-High Field MRI (Invited)...N/A*

Marc Dubois (Institut Fresnel, France); Tryfon Antonakakis (Multiwave Imaging, France); Alexandre Vignaud (Commissariat à l'Energie Atomique & NeuroSpin, France); Redha Abdeddaim (Aix Marseille University, France); Stefan Enoch (CNRS & Institut Fresnel, France)

11:40 *Dynamic Beam Switching with Shiftable Multimodal Anti-Reflective Coatings (Invited)...508*

Sherman Marcus and Ariel Epstein (Technion - Israel Institute of Technology, Israel)

12:00 *Metamaterial-based LTCC Compressed Luneburg Lens Antenna at 60 GHz for Wireless Communications (Invited)...513*

Dmitry E Zelenchuk (Queen's University of Belfast, United Kingdom (Great Britain)); Camilla Karnfelt (Lab-STICC UMR 6285 & IMT Atlantique, Institut Mines-Telecom, France); Francois Gallée (IMT Atlantique, France); Irina Munina (St. Petesburg Electrotechnical University LETI, Russia)

12:20 *Novel ceramic composites for targeted magnetic resonance imaging (Invited)...N/A*

Alexey P. Slobozhanyuk (ITMO University & Australian National University, Russia)

12:40 *Active metasurfaces based on phase change materials or hydrogels (Invited)...N/A*

Dmitry Chigrin (DWI Leibniz Institute for Interactive Materials & RWTH Aachen University, Germany)

CM2: CELEMON 2

Organizer: Hagit Messer-Yaron

Room: Royal J

Chair: Jonatan Ostrometzky (Tel Aviv University, Israel)

11:10 *Dissimilarity of rainfall information retrieved from collocated commercial microwave links...N/A*

Anna Špačková, Martin Fencel and Vojtech Bares (Czech Technical University in Prague, Czech Republic)

11:15 *Cross Environmental Monitoring Using StarGAN...N/A*

Sergey Timinsky and Hagit Messer (Tel-Aviv University, Israel); Jonatan Ostrometzky (Tel Aviv University, Israel)

11:20 *Urban moisture based on CML data and relation to land-cover - case of Tel- Aviv metropolitan area...N/A*

Yoav Rubin and Pinhas Alpert (Tel Aviv University, Israel)

11:25 *Precipitation estimation from short commercial microwave links in an urban environment...N/A*

Roy Janco (Tel Aviv University, Israel); Hagit Messer (Tel-Aviv University, Israel); Jonatan Ostrometzky (Tel Aviv University, Israel)

11:30 *A Comparative Study of 2-D Non-parametric B-Splines Field Estimation Based on Point and Line Projection Sensors...N/A*

Shay Sagiv (Tel Aviv University, Israel); Hagit Messer (Tel-Aviv University, Israel)

11:35 Study on the superiority of commercial microwave link network for rainfall monitoring...N/A

Xin Zheng (Hohai University, China); Hagit Messer (Tel-Aviv University, Israel); Qian Wang and Tao Yang (Hohai University, China)

11:40 Rainfall estimates from personal weather station and commercial microwave link data in Germany...N/A

Maximilian Graf (Karlsruhe Institute of Technology & Institute of Meteorology and Climate Research, Germany); Abbas El Hachem, Micha Eisele and Jochen Seidel (University of Stuttgart, Germany); Christian Chwala and Harald Kunstmann (Karlsruhe Institute of Technology, Germany); András Bárdossy (University of Stuttgart, Germany)

11:45 Deep Learning Method for Rainfall Prediction using Satellite Links Attenuation...N/A

Gil Rafalovich (Tel Aviv University, Israel); Hagit Messer (Tel-Aviv University, Israel); Jonatan Ostrometzky (Tel Aviv University, Israel)

11:50 Anomalies in CML attenuation data - Discussing machine learning based detection strategies and their benefit for rainfall estimation...N/A

Julius Polz and Luca Glawion (Karlsruhe Institute of Technology, Germany); Maximilian Graf (Karlsruhe Institute of Technology & Institute of Meteorology and Climate Research, Germany); Christian Chwala and Harald Kunstmann (Karlsruhe Institute of Technology, Germany)

11:55 Demonstrating the value of CML derived rainfall data for climate resilience services...N/A

Jan Priebe (GSM Association, United Kingdom (Great Britain))

12:00 Precipitation estimates from microwave links for urban hydrology: Improving the accuracy using wet antenna calibration...N/A

Jaroslav Pastorek and Martin Fencel (Czech Technical University in Prague, Czech Republic); Joerg Rieckermann (Swiss Federal Institute of Aquatic Science and Technology, Dübendorf, Switzerland); Vojtech Bares (Czech Technical University in Prague, Czech Republic)

Wednesday, November 3 14:20 - 16:10

SCA3: Short Course: Array Antenna Synthesis - Theory, Techniques, and Applications 3

Room 3

14:20 Array Antenna Synthesis - Theory, Techniques, and Applications 3...N/A

Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Nicola Anselmi (ELEDIA Research Center, Italy); Andrea Massa (University of Trento, Italy); Lorenzo Poli (ELEDIA Research Center, University of Trento, Italy); Paolo Rocca (University of Trento & ELEDIA Research Center, Italy)

CSW2: Special Session: Coupling of Spin Waves with Microwave and Optical Radiation 2

Organizers: Grigorios Zouros & Evangelos Almpanis

Room 4

Chairs: Vitaliy Lomakin (UCSD, USA), Grigorios Zouros (National Technical University of Athens, Greece)

14:20 Magnon-based data processing (Invited)...N/A

Andrii Chumak (University of Vienna, Austria)

14:50 Synchronization in arrays of spin transfer torque oscillators (Invited)...N/A

Iana Volvach (UCSD, USA); Vitaliy Lomakin (University of California, San Diego, USA)

15:10 Interaction of Microwave Coupled Ferrimagnetic Sphere with Figure-8 Laser (Invited)...516

Banoj Kumar Nayak, Cijy Mathai, Oleg Shtempluk and Eyal Buks (Technion-Israel Institute of Technology, Israel)

15:30 The interplay between spin waves and microwave magnetic field in magnetization textures and planar magnetic nanostructures (Invited)...518

Jaroslav W. Klos, Maciej Krawczyk, Szymon Mieszczak and Pawel Gruszecki (Adam Mickiewicz University Poznan, Poland)

15:50 Exploring the magneto-optical coupling of a ferrimagnetic sphere resonator (Invited)...N/A

Cijy Mathai, Oleg Shtempluk and Eyal Buks (Technion-Israel Institute of Technology, Israel)

EPS3: Electronic Packaging & Thermal Management 3

Room 5

Chair: Gennady Ziskind (Ben-Gurion University of the Negev, Israel)

14:20 - 14:35 15 BGU Oren Regev Israel oregev@bgu.ac.il Enhanced thermal management of composite materials

14:35 - 14:50 16 Mizur Technology Shay Kaplan Israel shay@mizur.com Digital Loudspeaker packaging challenges

14:50 - 15:05 17 PV Nano Cell Hanan Marcovitch Israel hanan@pvnanocell.com Digital Printed Electronics: Mass-Production Technologies & Application

15:05 - 15:20 18 ANSYS, MARVELL, INTEL Shai Sayfan-Altman Israel shai.sayfan-altman@ansys.com The Hidden Challenges in Manufacturing variations

15:20 - 15:35 19 ACT Adam F. Say USA Adam.Say@1-ACT.com A Comparison of Advanced Passive and Active Cooling Solutions on the Basis of Size, Weight and Power (SWaP)

15:35 - 15:50 20 Rafael Elad Dor Israel ELADDOR@rafael.co.il Thermal design and analysis for RPV's avionic box - challenges and solutions

15:50 - 16:10 21 Elta Michael Kedem Israel mkedem@elta.co.il Miniaturization SiP and MCM Motivation, hurdles & Implementation"

SM2: Special Session: Scattering Management with Metamaterials and High index Composites 2

Organizer: Pavel Ginzburg

Room: Royal I

Chairs: Ariel Epstein (Technion - Israel Institute of Technology, Israel), Pavel Ginzburg (Tel Aviv University, Israel)

14:20 Preventing Long-range RFID theft with Anapole States...N/A

Anna Mikhailovskaya, Diana Shakirova, Sergey Krasikov and Ildar Yusupov (ITMO University, Russia); Dmitry Dobrykh (ITMO University, Russia & Tel Aviv University, Israel); Alexey P. Slobozhanyuk (ITMO University & Australian National University, Russia); Andrey Bogdanov (ITMO University, Russia); Dmitry Filonov (Moscow Institute of Physics and Technology, Russia); Pavel Ginzburg (Tel Aviv University, Israel)

14:40 Photonic quasicrystals open up novel possibilities for electromagnetic field manipulation (Invited)...N/A

Mikhail V Rybin (ITMO University, Russia)

15:00 Metasurface Inspired Resonators for Application in One-to-many Wireless Power Transfer System (Invited)...N/A

Pavel Belov, Pavel Smirnov, Tatiana Filimonova, Aydar Rakhmatullin and Georgii Baranov (ITMO University, Russia); Mingzhao Song (Harbin Engineering University, China & ITMO University, Russia); Lev Zelenkov, Eduard Danilovskiy, Sergey Makarov and Polina Kapitanova (ITMO University, Russia)

15:30 Compact ceramic on-metal RFID tag...N/A

Ildar Yusupov (ITMO University, Russia); Dmitry Dobrykh (ITMO University, Russia & Tel Aviv University, Israel); Alexey P. Slobozhanyuk (ITMO University & Australian National University, Russia); Dmitry Filonov (Moscow Institute of Physics and Technology, Russia); Pavel Ginzburg (Tel Aviv University, Israel)

Wednesday, November 3 14:20 - 17:30

CM3: CELEMON 3

Organizer: Hagit Messer-Yaron

Room: Royal J

Chairs: Pinhas Alpert (Tel Aviv University, Israel), Hagit Messer (Tel-Aviv University, Israel)

14:20 Commercial microwave links as a measurement tool for high resolution humidity observation-An overall review of recent applications...N/A

Pinhas Alpert and Yoav Rubin (Tel Aviv University, Israel)

14:37 Estimating water vapor density from an E-band microwave link...N/A

Martin Fencel and Vojtech Bares (Czech Technical University in Prague, Czech Republic)

14:54 The Effect of Bird Flocks on Commercial Microwave Links...N/A

Daniel Ben Moshe (Tel Aviv University, Israel); Hagit Messer (Tel-Aviv University, Israel)

15:11 Investigations on Radome Wetness Using a Monostatic Field Experiment...N/A

Jonas F Tiede and Uwe Siart (Technical University of Munich, Germany); Nico Blettner (University of Augsburg, Germany); Harald Kunstmann and Christian Chwala (Karlsruhe Institute of Technology, Germany)

15:28 Advantages in Line Projection Rain Retrieval - A Review of Relevant Studies...N/A

Hagit Messer (Tel-Aviv University, Israel)

15:45 Statistical Spatial Characterization of Rainfall Fields by Measurements from Commercial Microwave Links...N/A

Adam Eshel and Pinhas Alpert (Tel Aviv University, Israel); Hagit Messer (Tel-Aviv University, Israel)

16:02 Performance evaluation of intensity estimation after detection and its application on accumulated rain estimation from attenuation level of signals from commercial microwave links...N/A

Taer Weiss, Israel (Tel Aviv & Tel Aviv University, Israel); Hagit Messer (Tel-Aviv University, Israel); Tirza Routtenberg (Ben Gurion University of the Negev, Israel)

16:19 Combining commercial microwave link and rain gauge observations to estimate countrywide precipitation: a stochastic reconstruction and pattern analysis approach...N/A

Nico Blettner (University of Augsburg, Germany); Christian Chwala (Karlsruhe Institute of Technology, Germany); Barbara Haese (University of Augsburg, Germany); Sebastian Hörning (University of Queensland, Australia); Harald Kunstmann (Karlsruhe Institute of Technology, Germany)

16:36 Adaptive Models for the Attenuation Time Series Forecasting...522

Dror Jacoby and Jonatan Ostrometzky (Tel Aviv University, Israel); Hagit Messer (Tel-Aviv University, Israel)

16:53 RainGAN: A Conditional Rain Fields Generator...529

Hai Victor Habi (Tel Aviv University, Israel); Hagit Messer (Tel-Aviv University, Israel)

17:10 Interactive Panel: Industry and Academia Introduction Talk: RADAR and CML QPE: How Can They Benefit From Each Other?...N/A

Hagit Messer (Tel-Aviv University, Israel)

Wednesday, November 3 16:20 - 17:30

WeP: Plenary Session

Room: Royal I

Chair: Yarden Mazor (Tel Aviv University, Israel)

16:20 A Technical Confluence Of UWB Radar And Communications In A Congested RF Environment...N/A

Mark E Davis (Medavis Consulting, USA)

16:55 A new generation of metasurface antennas...N/A

Stefano Maci (University of Siena, Italy)

Wednesday, November 3 17:30 - 18:00

WeC: Awards Ceremony & Closing

Room: Royal I