2014 IEEE 28-th Convention of Electrical and Electronics Engineers in Israel

December 3 – 5, 2014
Hilton Queen of Sheba, Eilat, Israel
Preliminary Program
Welcome Message

Dear Colleagues,

As part of the activities of the Israeli section of IEEE, we will be holding our 28th convention of electrical and electronics engineers in Israel during December 3-5 2014, in Eilat, Israel. The convention is organized by the Institute of Electrical and Electronics Engineers (IEEE) which is the largest professional organization in the world with its estimated 350,000 members. IEEE in itself is highly influential in the technological fields of electrical and electronic engineering with publications of over 155 journals and approximately 25% of the general scientific publications in these technological fields.

The Israeli section currently includes 1150 members. The biennial convention of the Israeli section of IEEE is a central event, which is prestigious and highly significant, in the community of electronics, computer and electrical engineering in Israel, as the works presented at these conferences reflect the forefront in research, development and application in these areas. The 2012 convention will feature over 300 presentations in a wide spectrum of disciplines such as signal processing, control theory, circuits and systems, energy, power electronics, computers, communications, antennas, and electro-optics. We therefore expect this convention to contribute to the exchange of knowledge and ideas between different areas in addition to increasing discipline-specific knowledge in each discipline.

We will also have the opportunity to celebrate 50 years of our existence at the convention. In June 1954, 30 members of I.R.E. residing in Israel met in Haifa and applied “for the formation of an IRE section in conformity with I.R.E. regulations”. The establishment of the “first IRE section in the Eastern Hemisphere, the Israel Section” was approved by the IRE Board of Directors at its October 1954 meeting, and the official date of founding of the Israel Section is October 5th, 1954. We will hold a special session devoted to the history of IEEE in Israel where we will also survey our achievements and honor outstanding IEEE members.

I would especially like to express my gratitude to Yuval Beck, who contributed greatly to the convention, on all its aspects. It is their dedication that enabled the quality and success of this convention, and for that I hold my deepest appreciation. I would also like to thank the authors, technical committee members, chairmen of the sections, and all those who put the effort in preparing this convention. I would of course wish to thank the participants – your presence and the presence of your colleagues allows the existence of this convention and liven it.

Respectfully yours,
Prof. Simon Litsyn
Chairman IEEE Israel
Wednesday, December 3

10:00-16:00 - **registration and check-in** – Hilton Queen Sheba Hotel

13:30-14:30 - **Get-Together and Cocktail** at Tradeshow Area at the Herods Hotel

14:30-16:00 - **Plenary Session 1 - SEEEI**

Moderator: Dr. Ilan Suliman
Trends in the Israeli Electric Power Market

16:00-16:30 - **Coffee Break**

16:30-17:30 - **Opening Ceremony & Greetings** - Herods Boutique Hotel-Kings Hall

Chair: Yizhak Balmas
Eng. Emil Koifman Chairman of SEEEI
Prof. Simon Litsyn, Chairman of IEEE-Israel
Eng. Elisha Yanay, Chairman of the Israeli Association of Electronics and Software Industries
Major General (Res.) Yiftach Ron-Tal, Chairman of the board, Israel Electric Corporation
Ms. Orna Hozman-Bachor, Director General Ministry of National Infrastructure Energy and Water
IEEE Israel Life Achievements Awards Presentation
Special Address- Ms. Weshu Khare, Harvard University, USA, Runner up at Intel International Science and Engineering Fair

17:30-19:00 - **Jubilee Plenary Session of IEEE Israel**

19:00-21:00 - **Dinner**

21:00 - **Social Event the Isradixie Band** - Canaan Hall Hilton Queen Sheba Hotel
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<td>8:30-10:40</td>
<td>Signal processing 1</td>
<td>Special Session on EMC</td>
<td>Special Session on Electronics for Energy Systems 1</td>
<td>Special Session on Communication and Information Diffusion in Multi-Agent Systems</td>
<td>Circuits 1</td>
<td>Computers 1</td>
<td>Special Session on Coding in Memories</td>
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<td>1</td>
<td>Chair: Nadav Levanon</td>
<td>Chair: Jacob Gavan</td>
<td>Chair: Doron Shmilovitz</td>
<td>Chair: Irad Ben-Gal and Eugene Kagan</td>
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<td>11:00-12:50</td>
<td>Signal processing 2</td>
<td>Communications 1</td>
<td>Power 1</td>
<td>Special Session on Power Management Integrated Devices and Circuits</td>
<td>Circuits 2</td>
<td>Computers 2 + Engineering in Medicine and Biology 1</td>
<td>Industrial Electronics and Applications + Power 3</td>
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<td>Chair: TBD</td>
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<td>Communications 2</td>
<td>Special Session 6: Renewable Energy and Energy Flow</td>
<td>Pattern Analysis and Machine Intelligence 1</td>
<td>Circuits 3</td>
<td>Engineering in Medicine and Biology 2</td>
<td>Engineering Management + Vehicular Technology</td>
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## Friday, December 5

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Thursday, December 4, 2014
Session 1: 8:30-10:40

SP1: Chair Nadav Levanon
Signal processing 1
- **Weight Windows - An Improved Approach** - 3
  Itzik Cohen and Nadav Levanon
- **An Approach to Estimation of Unknown Signal Composed from Several Unknown Frequencies** - 19
  Ilan Rusnak and Liat Peled-Eitan
- **Creating Sidelobe-Free Range Zone Around Detected Radar Targets** - 23
  Nadav Levanon
- **User Determined Superdirective Beamforming** - 34
  Reuven Berkun, Israel Cohen and Jacob Benesty
- **On the Achievable Coverage of Rain Field Mapping Using Measurements from a Given Set of Microwave Links** - 60
  Omry Sendik and Hagit Messer
- **POC Form based Tracking and Estimation of Harmonic Signals with Unknown Frequencies** - 61
  Eyal Braiman and Ilan Rusnak

SS EMC: Chair Jacob Gavan
Special Session EMC: Basic and Applied EMC
- **PCB EMI Simulation** – 168
  Shai Sayfan-Alman and Vladimir Vulfin
- **EMC Education in the World and in Israel** – 236
  Jacob Gavan and Moshe Rousso
- **Induced Static Magnetic Field by a Cellular Phone** – 241
  Moshe Einat and Asher Yahalom
- **Design of a Broadband Periodic Absorber for Microwave Frequencies** – 167
  Vladimir Vulfin, Shai Sayfan-Alman and Reuven Shavit
- **EMI Due to Signal Integrity & Power Integrity Missed Design**
  S. Shlomi Zigdan
- **Wideband Communication and Remote Sensing in the Extremely High Frequency and Terra- Hertz Regime**
  Yossi Pinhassi
SS POW1: Chair Doron Shmilovitz
Special Session 1: Power Electronics for Energy Systems 1
- Minimizing Fuel Consumption and Mechanical Wear of Diesel Generator Based Auxiliary Power Unit - 89
  Gal Geula, Moshe Averbukh and Alon Kuperman
- Partial Shading Problem Solution Via Permanent Monitoring of Individual Panels for Solar Arrays Fed by MPPT - 142
  Moshe Averbukh and Pavel Domorad
- The Virtual Infinite Capacitor - 238
  Guy Yona and George Weiss
- Study of Magnetic Actuation Systems - 108
  Ofer Ezra and Mor Mordechai Peretz
- Suitability of Capacitive Converters to Photovoltaic Systems - 171
  Sigmond Singer, Yuval Beck, Wu Bin and Keyue Smedley
- A Simple Method of PV Cells Balancing for Maximum Power Harvesting in Partially Shaded Environmen - 203
  Nikolay Telzhensky, Ilya Zeltser and Mor. M. Peretz

SS COMINF: Chair Irad Ben-Gal and Eugene Kagan
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- An Approach to Bayesian Multi-Mode Statistical Process Control based on Subspace Selection – 124
  Marcelo Bacher and Irad Ben-Gal
- Information Diffusion in Sub-Communities – 159
  Eugene Khmelnitsky and Eugene Kagan
- Multi-Valued Logic Based on Probability-Generated Aggregators – 149
  Eugene Kagan, Alexander Rybalov and Ronald Yager
- Honest Signaling in the Cooperative Search – 150
  Hava Siegelmann, Eugene Kagan and Irad Ben-Gal
- The Model of Choice between Preferences: Elevator-Stairs Dilemma – 136
  Rottem Botton
- Information Spread in the Age of the Internet – 128
  Alon Sela and Irad Ben-Gal
CIR1: Chair TBD

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- Non-Linear Controllers for Non-Linear Model of Hovering Autonomous Underwater Vehicles with Robotic Arm - 71
  Boris Braginsky and Hugo Guterman
- Optimizing the PID Controller for Slow Ramp Set Point - 188
  Elroei Damri, Eli Shteimberg, Guy Zaidner, Tsachi Chana, Meir Arad and Yosef Cohen
- Robust Terminal Filtering in an H-infty Application to Affine Functional Networks Training Robust Terminal Filtering in an H-infinity - Application to Affine Functional Networks Training - 218
  Isaac Yaesh, Noelia Sanchez Marono and Uri Shaked
- Power-Aware Networks: Balancing Motion with Communication Energy in Mobile Robotic Systems - 233
  Yorai Wardi and Usman Ali

CMP1: Chair TBD

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- Cloud Computing Through Limited Bandwidth Inflight Airplane WiFi Communication - 21
  Shlomi Kushchi, Yehonatan Kfir and Shlomo Weiss
- Designing of Single Precision Floating Point DSP Co-Processor - 43
  Evgeni Overchick and Binyamin Abramov
- Massively Parallel Computations of the LZ-Complexity of Strings - 73
  Alexander Belousov and Joel Ratsaby
- Accelerating Duplicate Data Chunk Recognition Using NN Trained by Locality-Sensitive Hash - 76
  Amit Berman, Yitzhak Birk and Avi Mendelson
- Parallel Cycle-Accurate System C kernel - 105
  Lior Ainey, Avi Efrati and Shlomo Weiss
- Dynamo and Big Table – Review and Comparison - 147
  Grisha Weintraub
SS COD: Chair TBD

Special Session on Coding in Memories

- Security Oriented Codes – 201
  Osnat Keren
- New Bounds and Constructions for Granular Media Coding – 174
  Artyom Sharov and Ronny Roth
- What can Codes do for Your SSD's Read/Write Performance? - 245
  Yuval Cassuto, Evyatar Hemo and Rami Cohen
- Randomness Extractors and Data Storage – 172
  Ronen Shaltiel
Thursday, December 4, 2014

Session 2: 11:00-12:50

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- Sparse Signal Separation with an Off-Line Learned Dictionary for Clutter Reduction in Echocardiography - 85
  Javier Turek, Michael Elad and Irad Yavneh
- Differences in Phase Synchrony of Brain Regions between Regular and Dyslexic Readers – 118
  Alex Frid
- Automatic Assessment of Parkinson’s Disease From Natural Hands Movements Using 3D Depth Sensor - 135
  Ben Dror, Eilon Yanai, Alex Frid, Nimrod Peleg, Nadav Goldenthal, Ilana Schlesinger, Hagit Hel-Or and Shmuel Raz
- A Shortest Path Based Interactive Segmentation Method of Putamen in MR Images - 156
  Zhenguo Li, Enqing Dong, Pei Yang, Wenyan Sun, Weichong Zhong and Huakui Sun
- Equalization Strategies for Binaural Room Impulse Response Rendering using Spherical Arrays - 193
  Jonathan Sheaffer and Boaz Rafaely
- Ricci Flow for Image Processing – 197
  Ezri Sonn, Emil Saucan, Eli Appelboim and Yehoshua Y. Zeevi

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- Statistically Optimal Routing Scheme in Multihop Wireless Ad-Hoc Networks – 79
  Yiftach Richter and Itsik Bergel
- A Location Agnostic Network Architecture for Financial Stock Trading – 112
  Radu A. Badea
- The Ergodic Rate Density of MIMO Ad-Hoc Networks – 143
  Yaniv George, Itsik Bergel and Ephraim Zehavi
- Fixed Point Theorem and its Limitation for Derivation of Wi-Fi Networks Performance – 152
  Yoram Haddad, Frederic Robert and Gwendal Le Grand
  Enqing Dong, Fulong Qiao, Jiaren Wang, Zongjun Zou and Dejing Zhang
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- Optimal Control of Micro-Grid Autonomous Hybrid Power Station Based on Modeling of Stochastic Energy Consumption – 81
  Pavel Eliseevand Moshe Averbukh
- Fault Location and Identification for Unmanned Distribution Substation using Bayesian Relationship Matrix and Fuzzy Logic – 139
  Indhumathi Chellaswamy and Joy Vasantha Rani S.P.
- Demand-Side Management in Smart Grid Using Game Theory – 144
  Eran Salfati and Raul Rabinovici
- 3-DOF Overhead Line Mechanical Dynamic Model – 216
  Miroslav Muller, Zdenek Muller and Josef Tlusty
- Analytical Closed-Form Solution of Current Responses of Multilevel Converter Connected to Unbalanced Grid – 217
  Zdenek Muller, Jan Svec, Josef Tlusty and Viktor Valouch
- Telecommunications: Paving the way for PV and ORC wide spread use of electricity production – 234
  Lucien Bronicki and Dov Berger
- Simulation and Optimization of a Four Area Load AGC System after Deregulation with Generation Rate Constraints using Fuzzy Logic Controller – 237
  Pankaj Chawla and S K Gupta

SS POWM: Chair Shye Shapira

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- High Performance Integrated Inductors for Power Management Applications – 100
  Ayal Eshkoli, Sharon Bar-Lev, Gabi Peled, Shye Shapira and Yael Nemirovsky
- 700V integrated Power Management Platform with Record Density Logic – 36
  Allon Parag, Einar Ophir Arad, Moran Cohen Yasour, Eran Lipp, Ksenia Sirota, Shye Shapira and Efraim Aloni
- Integrated High-Voltage (HV) Schottky Diode for Power Management ICs – 28
  David Mistele, Noel Berkovitch, Sharon Levin and Shye Shapira
- Full IC Design of a PWM Controller with Integrated High-Resolution ADC and DPWM Peripherals using Digital Backend Tools – 104
  Timur Vekslender, Eli Abramov, Yevgeny Bezdenezhnykh, Alon Cervera and Mor Peretz
- An Analytical Calculation of the Silicon Limit for Two Dimensional RESURF Drift Layers – 31
  Morad Awad and Shye Shapira
- Design and IC Implementation of a Fully Digital Power Management Delay-Line ADC – 120
  Yevgeny Bezdenezhnykh, Timur Vekslender, Eli Abramov, Alon Cervera and Mor Peretz
- Integrated Power over Ethernet Control Chip with on Chip Current Sensing – 179
  Nadav Barnea
CIR2: Chair TBD

Circuits 2
- **Fault-Tolerant Robust Capture Zone Construction: Hybrid Dynamics Approach** – 2
  Josef Shinar, Vladimir Turetsky and Valery Y. Glizer
- **Optimal Joint Maximum Likelihood Estimation of Nonlinear Dynamic Systems** – 18
  Ilan Rusnak
- **Efficient Newton Method for Optimal Viscous Dampers Design** – 39
  Ido Halperin, Grigory Agranovich and Yuri Ribakov
- **Joint Kalman Filter for Formation Moving with Wiener Process Acceleration** – 59
  Itzik Klein, Ilan Rusnak and Yaakov Bar-Shalom
- **Motion Planning in Dynamic Uncertain Environment using Probability Navigation Function** – 140
  Shlomi Hacohen, Shraga Shoval and Nir Shvalb
- **Voltage-to-Digital Converter with Event-Driven Charge Redistribution** – 223
  Dariusz Koscielnik, Jakub Szyduczynski and Marek Miskowicz

CMP2 + MED1: Chair TBD

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- **Scalable Cloud and Smartphones for Image based Indoor Navigation** – 224
  Iaakov Exman and Eli Levi
- **Cube 3-D Orientation from Smartphone Pictures** – 227
  Iaakov Exman and Eyal Ben David
- **Edge Preserving Multi-Modal Registration Based On Gradient Intensity Self-Similarity** – 74
  Tamar Rott, Dorin Shriki and Tamir Bendory
- **An Algorithm for Processing and Analysis of Gas Chromatography–Mass Spectrometry (GC-MS) Signals for Early Detection of Parkinson’s Disease** – 148
  Yizhar Lavner, Soliman Khatib, Fadi Artoul and Jacob Vaya
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- Vibration of Induction Motors Operating with Variable Frequency Drives - 82
  Mikhail Tsypkin
- Reconfigurable Controller for Electrical Machines based on Kron’s Primitive Model - 106
  Saurabh Vinayak Lawate and Dr. M. S. Ali
- Energy Losses Modeling in Induction Motors Fed by Danfoss VFD Micro Drive FC51 - 51
  Assi Mohamed, Lokshin Yafem and Averbukh Moshe
- Novel Differential Linear Electrostatic Motor with Light Weight Rotor - 132
  Saad Tapuchi and Dmitry Baimel
- Using Synchronverters for Power Grid Stabilization - 107
  Eitan Brown and George Weiss
- A method for Proving the Global Stability of a Synchronous Generator Connected to an Infinite Bus - 116
  Vivek Natarajan and George Weiss
- Tracking Controller for Output Voltage Regulation in a Boost Converter - 115
  George Weiss and Vivek Natarajan
Thursday, December 4, 2014

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- Multi-Pixel Anomaly Detection in Multi-Temporal Thermography – 10
  Ilan Schwartzman, Stanley R. Rotman and Dan G. Blumberg
- Anomaly Detection in Multi-Temporal Infrared Thermography – 27
  Ilan Schwartzman, Stanley Rotman and Dan Blumberg
- Effect of Correlation between Non-Local Means Patch Dissimilarities on Search Region Adaptation for Improved Image Denoising – 32
  Hila Berkovich, David Malah and Dr. Meir Bar-Zohar
- Low Complexity Image Compression of Capsule Endoscopy Images – 47
  Aviv Barabi, Dvir Sason and Rami Cohen
- Tone Mapping for Shortwave Infrared Face Images – 78
  Maya Harel and Yair Moshe

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- Mutual Information of OFDM Systems with Nonlinear Power Amplifier – 25
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- Post-Distortion for Memoryless Power Amplifiers – 219
  Ziv Alina and Ofer Amrani
- On Disaster Recovery in OFDMA Environment – 178
  Eyal Radiano and Ofer Amrani
- Predictive Analog-Digital-Conversion in Fiber Optics Communication – 182
  Yaron Yoffe and Dan Sadot
- Improved Electrical Dispersion Compensation for High-Speed Analog Dispersive Transmission Lines – 11
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- A Novel Algorithm and Software Tool for Energy Balance Correctness at Power Plants, PV farms, and Prosumers – 20
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- Statistical Analysis of Power Systems and Application to Load Forecasting – 64
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- Solution of the Optimal Power Flow Via a 1-OPT Local Search Method – 187
  Amir Beck and Yuval Beck

PAT1: Chair TBD
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  Hadas Benisty and Koby Crammer
- Anomaly Detection Using the Knowledge-based Temporal Abstraction Method – 160
  Asaf Shabtai
- Recognizing Deep Grammatical Information during Reading from Event Related fMRI – 226
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  Iris Shtrasler, Eran Socher and Asher Madjar
- Noise Figure Reduction Methodology of Near-Fmax Frequencies Millimeter-Wave Receivers – 65
  Jenia Elkind and Eran Socher
- Analog Voltage and Current Mode Integrated Readout for Low-Cost Uncooled Passive IR sensors based on CMOS-SOI-NEMS Technology – 129
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- Designing High-Speed Signal Distribution for Multi-Drop Connection Using Simulations – 169
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- Robust Peak to Peak and H-Infty Feedback-Control Analysis of the Threonine Synthesis Pathway – 176
  Eli Gershon, Matan Navon and Uri Shaked
- Exploring Back Biasing Opportunities in 28nm UTBB FD-SOI Technology for Subthreshold Digital Design – 214
  Ramiro Taco, Itamar Levi, Alex Fish and Marco Lanuzza
- Digital Closed Loop Design for Wideband Envelope Tracking Systems – 220
  Elinor Kashani, Emanuel Cohen and Eran Socher

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  Mor Cohen, Yoel Shkolinsky and Arie Yeredor
- Evaluation of Functional Brain Connectivity Abnormalities in Head Injured Patients Using fMRI Image Processing – 213
  Assaf Shocher, Yam Kushinsky, Ilan Shallom, Alon Friedman and Ronel Veksler
- Ultrasound De-convolution using a Least Angle Regression Approach – 222
  Roie Pri-Or, Zvi Friedman and Moshe Porat
  Gerry Leisman, James Gilchriest, Rafael Rodríguez-Rojas, Mario Estevez, Calixto Macahdo and Moshe Kaspi
  Gerry Leisman, Rafael Rodríguez-Rojas, Karla Batista, Yasser Iturria, Calixto Macahdo and Juan Morales
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- Model-Based Protocol Engineering: Specifying Kerberos with Object-Process Methodology – 77
  Yaniv Mordecai and Dov Dori
- Verification of Safety for Autonomous Unmanned Ground Vehicles – 83
  Daniel Meltz and Hugo Guterman
- Wireless Controller Area Network For In-Vehicle Communication – 121
  Moshe Laifenfeld and Tal Philosof
- In-Vehicle Hybrid Electrical Architecture – 231
  Tal Philosof and Moshe Laifenfeld
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- Sequential Voice Conversion Using Grid-Based Approximation – 58
  Hadas Benisty, David Malah and Koby Crammer
- Speaker Localization by Humanoid Robots in Reverberant Environments – 62
  Vladimir Tourbabin and Boaz Rafaely
- Voice Activity Detection in Presence of Transients Using the Scattering Transform – 80
  David Dov and Israel Cohen
- Voice Activity Detection in Presence of Transient Noise Using Spectral Clustering and Diffusion Kernels – 114
  Oren Rosen, Saman Mousazadeh and Israel Cohen
- Parameter Estimation from Multiple Sensors with Mixed Resolution of Quantization – 103
  Elad Heiman and Hagit Messer

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- On Layered Transmission in Flat-Fading Clustered Cooperative Cellular Architectures – 48
  Gil Katz, Benjamin Zaidel and Shomo Shamai
- Bayesian Shadow Matching Algorithm for GNSS Positioning – 49
  Roi Yozevitch and Boaz Ben Moshe
- Tackling the GNSS Jamming Problem Using a Particle Filter Algorithm – 54
  Roi Yozevitch, Boaz Ben-Moshe and Sergai Safrigin
- Detecting Bottlenecks on-the-Fly in OLSR Based MANETs – 99
  Nadav Schweitzer, Ariel Stulman, Tirza Hirst, Roy David Margalit, Meir Armon and Asaf Shabtai
- Iterative Decoding of Robust Analog Product Codes – 133
  Avi Zanko, Amir Leshem and Ephraim Zehavi
- Lattice Interference Mitigation with Mixed Channel State Information – 199
  Itsik Bergel, Yoni Perets and Shlomo Shamai
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- **Real-Time Adaptive Estimation of Supercapacitor** – 91  
  Noam Reichbach and Alon Kuperman
- **Implementation of Digital Control for Buck Converter by Means a Single DSP** – 7  
  Yuval Beck, Ilia Shulman, Liran Katzir, Jacob Faingueilernt, Dror Medini and Bishara Bishara
- **Low Cost Battery/Supercapacitor Emulator Design** – 93  
  Sharon Farag and Alon Kuperman
- **Implementation of a High Voltage Power Supply With The Matlab/Simulink Embedded Coder** – 101  
  Liran Katzir, Yakir Loewenstern, Bishara Bishara and Doron Shmilovitz
- **Matlab-Simulink Model of AC Grid with Non-Linear Load and Static Compensator for Power Quality Improvement** – 12  
  Yuval Beck and Yefim Berkovich

PAT2: Chair TBD

Pattern Analysis and Machine Intelligence 2

- **Light Source Separation from Image Sequences of Oscillating Lights** – 6  
  Amir Kolaman, Rami R. Hagege and Hugo Guterman
- **Classification of Synthetic Aperture Radar Images Using Markov Random Field and Textural Features** – 14  
  Ariel Benou, Stanely Rotman and Dan Blumberg
- **Adware Detection and Privacy Control in Mobile Devices** – 26  
  Ianir Ideses and Assaf Neuberger
- **Game Theoretic Approach for Automatic Speech Segmentation and Recognition** – 33  
  Ujwala Rekha J, Shahu Chatrapati and Vinaya Babu A
- **Occlusion Handling Method for Object Tracking Using RGB-D Data** – 35  
  Ariel Benou, Itay Benou and Rami Hagage
Microwaves and Antennas 1

- **High Power RF Devices Based on High Temperature Superconductors** – 87
  Eldad Holdengreber, Moshe Mizrahi and Eli Farber

- **Simulation for a Crosstalk Avoiding Algorithm in Multi-Conductor Communication** – 113
  Reuven Ianconescu and Vladimir Vulfin

- **Pulsed Beam Scattering by a Fast Moving PEC Wedge** – 153
  Ram Tuvi and Timor Melamed

- **Measurement of Soil Moisture Content under Physical Crust by Millimeter-Wave Backscattering** – 162
  Alon Eliran, Naftaly Goldshleger, Asher Yahalom, Eyal Ben-Dor and Menachem Agassi

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- **Two-Photon Photoluminescence Imaging of Carbon Nanodots and its Conjugates with Porphyrin Dyes** – 15
  Ji-Yao Chen

- **Thermally Enhanced Photoluminescence for Efficient Photovoltaics** – 46
  Assaf Manor, Leopoldo Martin and Carmel Rotschild

- **RF Phase Amplification Based on Modulation-Phase Interferometry** – 67
  Seva Rosenberg, Moran Biton, Daniel Gotliv, Arye Schwarzbaum, Liat Rappaport, David Mermelstein and Shmuel Sternklar

- **Design of a 1x4 Silicon Wavelength Demultiplexer Based on Multimode Interference Coupler in a Slot Waveguide Structures** – 117
  Dror Malka, Yoav Sintov and Zeev Zalevsky

- **Collimated Backlight for Displays and Micro-Projectors** – 173
  Zeev Zalevsky, Rajesh Menon and Arkady Rudnitsky

- **Optical Micro-Multi-Racetrack Resonator Filter Based on SOI Waveguides** – 177
  Dror Malka, Moshik Cohen, Jarek Turkiewicz and Zeev Zalevsky
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- Lossy Compression with a Short Processing Block: Asymptotic Analysis – 1
  Yuval Kochman and Gregory W. Wornell
- Maximizing Rényi Entropy Rate – 38
  Christoph Bunte and Amos Lapidoth
- Semi-Deterministic Broadcast Channels with Cooperation – 66
  Ziv Goldfeld, Haim Permuter and Gerhard Kramer
- Tie Breaking for Singular Channels is Worth 1 Nat – 110
  Eli Haim, Yuval Kochman and Uri Erez
- The Error Exponent of the Binary Symmetric Channel for Asymmetric Random Codes – 122
  Rami Cohen and Wasim Huleihel
- Generating Error-Correcting Codes Based on Tower of Hanoi Configuration Graphs – 123
  Nadav Voloch, Elazar Birnbaum and Amir Sapir
- Bounding Techniques for the Intrinsic Uncertainty of Channels – 127
  Or Ordentlich and Ofer Shayevitz
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  Avishai Sintov and Amir Shapiro
- Simplified GPS Tracking Loops Simulation With Analytical Expressions for the
  Integrate and Dump Stages – 45
  Tsvi G. Dvorkind and Li Rosenbaum
- Multi-Channel Wafer Defect Detection Using Diffusion Maps – 86
  Gal Mishne and Israel Cohen
- Performance Measures for Sparse Spike Inversion Vs. Basis Pursuit Inversion – 229
  Igal Rozenberg, Israel Cohen and Anthony Vassiliou
- Localization of Lost Tag Transmitters Using a Yagi Antenna and a Telemetry Receiver
  – 200
  Amir Jevnisek, Yehudit Popov and Arie Yeredor

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- Improvement of DVB-S2 Spectral Efficiency Using Low Roll-Off - 212
  Nir Amira, Avihay Shirazi and Avraham Freedman
- Enhanced Spread Spectrum Aloha (E-SSA) an Emerging Satellite Return Link
  Messaging Scheme - 235
  Arie Reichman
- Characteristic Properties of Underground Radio Communications - 244
  Boris Levin and Motti Haridimer
- Channel Upgradation for Non-Binary Input Alphabets and MACs - 225
  Uzi Pereg and Ido Tal
- Datacom Multi-Mode Optical Link Using 850nm VCSELs at 25 Gb/s - 170
  Akhilesh Kumar Mishra, Gadi Eisenstein and Alexander Gershikov
- Correlation Based Phase Noise Compensation in 60GHz Wireless Systems – 125
  Nicholas Preyss, Radoslav Pantic and Andreas Burg

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- UDE Controller for Current Loop in Buckboost Converter - 141
  Ilan Aharon, Alon Kuperman and Doron Shmilovitz
- Boundary Controller for Switched Capacitor Converters - 97
  Alon Kuperman, Martin Mellinovsky, Yoram Horen and Saad Tapuchi
- Analysis of Supercapacitor Bank with Uncontrolled Active Balancer - 95
  Vladimir Yuhimenko, Moshe Averbukh, Grigori Agranovich and Alon Kuperman
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- Differentiation of Mixed Bacteria Samples in the Generic Level Using Infrared Spectroscopy and Multivariate Analysis – 41
  Ahmad Salman, Itshak Lapidot, Elad Shufan and Mahmoud Huleihel
- Visual Predictive Architecture for Biologically Inspired Object Recognition – 72
  Dan Malowany and Hugo Guterman
- Statistics of Stochastic Textures: Application in Pattern Analysis and Image Processing – 96
  Ido Zachevsky and Yehoshua Y. Zeevi
- Randomization Effect on Iterative-Based Speaker Diarization System for Telephone Conversations – 109
  Tal Furmanov, Lidiya Aminov, Ami Moyal and Itshak Lapidot
- Mahalanobis Based Emission Model for Speaker Diarization of Telephone Conversations – 111
  Tal Furmanov, Lidiya Aminov, Ami Moyal and Itshak Lapidot

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Microwaves and Antennas 2

- Radiation Fields of THz Free Electron Laser: 3D EM Simulation and Experimental Study – 4
  Boris Kapilevich, Yuri Lurie, Boris Perutski, Boris Litvak, Ariel Etinger, Aharon Friedman and Yehiel Vashdi
- Simulation and Optimization of Dummy Loads for Wideband Microwave Calorimeters – 22
  Vasily Kozhevnikov, Aleksey Klimov and Andrey Kozyrev
  Ido Aram, Khona Garb and Raphael Kastner
- Effects of Polarization on Heterodyne Detection and FMCW Using Glow Discharge Detectors at 300 GHz – 30
  Avihai Aharon, Daniel Rozban, Amir Abramovich and Natan S. Kopeika
- Edge Conditions for the Junction of Two Resistive Half-Planes with Different Surface Impedances – 70
  Igor Braver, Pinchos Fridberg, Khona Garb and Iosif Yakover

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- Novel Lateral Mobility in Silicon Solar Cells – 17
  Gady Golan and Alex Axelevitch
- Nanoscale Thick FD-SOI MOSFETs: a New Simple Modeling of the Electrical Behavior at Low Temperature – 88
  Avraham Karsenty and Avraham Chelly
• Low Frequency Noise in Surface and Buried Channel Nanometric CMOS transistors – 126
  Maria Malits, Igor Brouk, Adi Birman, Asaf Lahav, Amos Fenigstein and Yael Nemirovsky
• CMOS-SOI-MEMS Thermal Antenna and Sensors for Passive Uncooled THz Imaging – 134
  Alexander Svetlitza, Sara Stolyarova, Tatiana Blank, Igor Brouk and Yael Nemirovsky
• Observability Analysis for Tracking of Coordinated Turn Maneuvers – 165
  Itzik Klein, Yaakov Bar-Shalom and Ilan Rusnak
• On a Possible Division by Zero in the Interacting Multiple Model (IMM) Filter – 195
  Daniel Sigalov and Yaakov Oshman

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  Ronit Bustin, H. Vincent Poor and Shlomo Shamai
• The Listening-Helper Source-Coding Problem for a Doubly Symmetric Binary Source – 163
  Shraga Bross
• LDPC Ensembles that Universally Achieve Capacity under BP Decoding: a Simple Derivation – 190
  Anatoly Khina, Yair Yona and Uri Erez
• The Confidential MIMO Broadcast Capacity: a Simple Derivation – 191
  Anatoly Khina, Yuval Kochman and Ashish Khisti
• Optimal Fractional Repetition Codes for Distributed Storage Systems – 194
  Natalia Silberstein and Tuvi Etzion
• Capacity of Wireless Systems under Distributed Scheduling of Time-Dependent Users – 210
  Ori Shmuel, Asaf Cohen and Omer Gurewitz
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- Computing Quasi-Conformal Maps in 3D with Applications to Geometric Modeling
  and Imaging – 189
  Alexander Naitsat, Emil Saucan and Yehoshua Zeevi
- MSE Reduction in Digital Compensation for Non-Linear Analog Channels – 198
  Amir Weiss, Arie Yeredor and Mark Shtaif
- Event-Driven Charge Redistribution Analog-to-Digital Converter with Simultaneous
  Sampling and Conversion – 206
  Dariusz Koscielnik and Marek Miskowicz
- Voltage-to-Digital Converter with Event-Driven Charge Redistribution – 223
  Dariusz Koscielnik, Jakub Szyduczynski and Marek Miskowicz

SS SOCD: Chair Adam Teman and George Karakonstantis
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Technologies
- Towards a Black-Box Methodology for SRAM Stability Analysis – 154
  Robert Giterman and Alexander Fish
- Low Power Radiation Hardened SRAM - Challenges and Leading Solutions – 180
  Lior Atias, Adam Teman and Alexander Fish
- Variability-Aware Design Space Exploration of Embedded Memories – 184
  Shrikanth Ganapathy, Georgios Karakonstantis, Andreas Burg and Ramon Canal
- Energy Efficient Parallel Computing on the PULP Platform with Support for Open MP
  – 192
  Davide Rosssi, Antonio Pullini, Igor Loi, Francesco Conti, Giuseppe Tagliavini and Andrea
  Marongiu
- Battery Development for Ultra-Low-Voltage Systems - 166
  Lauri Koskinen, Markus Hiienkari, Tanja Kallio, Elina Pohjalainen and Matthew
  Turnquist
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• Comparison of Large Photovoltaic Power Plants with Conventional Ones and Prospects for Photovoltaic Plants use in Israel – 52
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• Fast Transition High Voltage Modulator using SiC MOSFETs Connected in Parallel – 239
  Nikolay Telzhensky and Ilya Zeltser
• Robust Control of Photovoltaic Voltage – 90
  Moshe Sitbon, Shmuel Schacham and Alon Kuperman
• Generalized Representation of Renewable Energy Generators – 92
  Sergei Kolesnik, Simon Lineykin and Alon Kuperman
• Combined Current Sensor and Non-Invasive Displacement Measurement for Magnetic Actuators – 119
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  Lidor Giladi, Elena Smith, Vladislav Shteeman, Eli Kapon and Amos A. Hardy
• Fiber-optic sensing based on Brillouin amplification and processing of Rayleigh scattering – 68
  David Mermelstein, Elyashiv Shacham, Moran Biton and Shmuel Sternklar
• Optimum Design of an Optical Noise Radar System – 69
  Ohad Gavra, Moran Biton, Dan Ben Shitrit, David Mermelstein, Gil Ezrahi and Shmuel Sternklar
• Analytical Approximation for Photonic Array Modes in 1D Photonic Devices – 196
  Elena Smith, Lidor Giladi, Vladislav Shteeman, Eli Kapon and Amos Hardy
• Energy Efficiency of Laser Driven Structure Based Accelerators – 204
  Adi Hanuka and Levi Schächter
• Continuous Wave Multi Wavelength Generator Based on Fiber Phase Sensitive Amplification – 221
  Alexander Gershikov and Gad Eisenstein
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Microwaves and Antennas 3

- **E-band Frequency Quadrupler with High Harmonic Rejection** – 181
  Nadav Mazor, Oded Katz, Roee Ben-Yishay, Roi Carmon, Benny Sheinman, Run Levinger and Danny Elad
- **DC to 110GHz Silicon to PCB Flip Chip Transition** – 183
  Noam Kaminski, Keishi Okamoto, Hiroyuki Mori and Danny Elad
- **A wideband 95-140GHz High Efficiency PA in 28nm CMOS** – 185
  Yuval Dafna, Emanuel Cohen and Eran Socher
- **Induced Currents on Omega and Chiral Particles** – 202
  Anton Kogan and Reuven Shavit