# 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 livens 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 Ministrry of National Infrastructure Energy and Water
IEEE Israel Life Achievements Awards Presentation
Special Address- Ms. Wesha 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

# Thursday, December 4

| Venue | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| | **Sapphire Hall** | **Topaz Hall** | **Opal Hall** | **Edom Hall** | **Canaan Hall** | **Ophir Hall** | **Eden Hall** |
| **8:30-10:40**<br><br>**1** | **Signal processing 1**<br><br>Chair: Nadav Levanon | **Special Session on EMC**<br><br>Chair: Jacob Gavan | **Special Session on Electronics for Energy Systems 1**<br><br>Chair: Doron Shmilovitz | **Special Session on Communication and Information Diffusion in Multy-Agent Systems**<br><br>Chair: Irad Ben-Gal and Eugene Kagan | **Circuits 1**<br><br>Chair: TBD | **Computers 1**<br><br>Chair: TBD | **Special Session on Coding in Memories**<br><br>Chair: TBD |
| **10:40-11:00** | Coffey Break | | | | | | |
| **11:00-12:50**<br><br>**2** | **Signal processing 2**<br><br>Chair: TBD | **Communications 1**<br><br>Chair: TBD | **Power 1**<br><br>Chair: Alon Kuperman | **Special Session on Power Management Integrated Devices and Circuits**<br><br>Chair: Shye Shapira | **Circuits 2**<br><br>Chair: TBD | **Computers 2 + Engineering in Medicine and Biology 1**<br><br>Chair: TBD | **Industrial Electronics and Applications + Power 3**<br><br>Chair: TBD |
| **12:50-14:00** | Lunch break | | | | | | |
| **14:00-16:00**<br><br>**3** | **Signal processing 3**<br><br>Chair: TBD | **Communications 2**<br><br>Chair: TBD | **Special Session 6: Renewable Energy and Energy Flow** | **Pattern Analysis and Machine Intelligence 1** | **Circuits 3**<br><br>Chair: TBD | **Engineering in Medicine and Biology 2**<br><br>Chair: TBD | **Engineering Management + Vehicular Tecnology** |

| | | | in Smart Grids<br><br>Chair: Yuval Beck | Chair: TBD | | | Chair: TBD |
|---|---|---|---|---|---|---|---|
| **16:00-16:20** | **Coffey Break** | | | | | | |
| **16:20-18:20**<br><br>**4** | **Signal processing 4**<br><br>Chair: TBD | **Communications 3**<br><br>Chair: TBD | **Power 2**<br><br>Chair: TBD | **Pattern Analysis and Machine Intelligence 2**<br><br>Chair: TBD | **Microwaves and Antennas 1**<br><br>Chair: TBD | **Photonics**<br><br>Chair: TBD | **Information Theory 1**<br><br>Chair: TBD |

# Friday, December 5

| Venue | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| | **Sapphire Hall** | **Topaz Hall** | **Opal Hall** | **Edom Hall** | **Canaan Hall** | **Ophir Hall** | **Eden Hall** |
| 8:30-10:40<br><br>5 | **Signal processing 5**<br><br>Chair: TBD | **Communications 4**<br><br>Chair: TBD | **Power 4**<br><br>Chair: TBD | **Pattern Analysis and Machine Intelligence 3**<br><br>Chair: TBD | **Microwaves and Antennas 2**<br><br>Chair: TBD | **Electron Devices + Aerospace Systems**<br><br>Chair: TBD | **Information Theory 2**<br><br>Chair: TBD |
| 10:40-11:00 | **Coffey Break** | | | | | | |
| 11:00-12:50<br><br>6 | **Signal processing 6**<br><br>Chair: TBD | **Special Session on Dependable and Energy Efficient SOC Design in Scaled Technologies**<br><br>Chair: Adam Teman and George Karakonstatis | **Special Session 2: Power Electronics for Energy Systems 2**<br><br>Chair: Sigmond Singer | **Lasers and Electro Optics**<br><br>Chair: TBD | **Microwaves and Antennas 3**<br><br>Chair: TBD | | |
| 13:00-14:30 | **Closing Session** | | | | | | |

# 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 Broadbabd Periodic Absorber for Microwave Frequencies – 167**
  Vladimir Vulfin, Shai Sayfan-Altman 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**

**Special Session: Communication and Information Diffusion in Multy-Agent Systems**

- **An Approach to Bayesian Multi-Mode Statistical Process Control based on Subspace Selection – 124**
  Marcelo Bacherand 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**

**Circuits 1**

- **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**

**Computers 1**

- **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

**SP2: Chair TBD**

**Signal Processing 2**

- **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

**COM1: Chair TBD**

**Communications 1**

- **A Novel Adaptive Logic for Dynamic Adaptive Streaming over HTTP Network - 55**
  Amit Dvir, Ran Dubin, Ofer Hadar and Boaz Benmoshe
- **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
- **An Energy Efficient Distributed Link Scheduling Protocol for Wireless Sensor Networks – 157**
  Enqing Dong, Fulong Qiao, Jiaren Wang, Zongjun Zou and Dejing Zhang

**POW1: Chair Alon Kuperman**

**Power 1**

- **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**

**Special Session 3: Power Management Integrated Devices and Circuits**

- **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,Einat 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 Cerveraand 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 andMor 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 Shovaland Nir Shvalb
- **Voltage-to-Digital Converter with Event-Driven Charge Redistribution – 223**
  Dariusz Koscielnik, Jakub Szyduczynski and Marek Miskowicz

**CMP2 + MED1: Chair TBD**

**Computers 2 + Engineering in Medicine and Biology 1**

- **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

**IND + POW3: Chair TBD**

**Industrial Electronics and Applications + Power 3**

- **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

# Session 3: 14:00-16:00

**SP3: Chair TBD**

**Signal Processing 3**

- **Multi-Pixel Anomaly Detection in Multi-Temporal Thermography – 10**
  Ilan Schvartzman, Stanley R. Rotman and Dan G. Blumberg
- **Anomaly Detection in Multi-Temporal Infrared Thermography – 27**
  Ilan Schvartzman, Stanley Rotmanand 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

**COM2: Chair TBD**

**Communications 2**

- **Mutual Information of OFDM Systems with Nonlinear Power Amplifier – 25**
  Ilia Iofedov, Igor Levakov and Dov Wulich
- **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**
  Yanir London and Dan Sadot
- **High Throughput Transmitter Architecture for DVB-S2 - 8**
  Haim Malka, Shahar Hochma and Nir Lifshtiz

**SS POWSG: Chair Yuval Beck**

**Special Session 6: Renewable Energy and Energy Flow in Smart Grids**

- **Recursive Solutions to Optimal Power-Flow Problems – 158**
  Yoash Levron
- **A Novel Algorithm and Software Tool for Energy Balance Correctness at Power Plants, PV farms, and Prosumers – 20**
  Netzah Calamaro, Emil Koifman, Yuval Beck and Doron Shmilovitz
- **Statistical Analysis of Power Systems and Application to Load Forecasting – 64**
  Yakir Loewenstern, Liran Katzir and Doron Shmilovitz
- **Solution of the Optimal Power Flow Via a 1-OPT Local Search Method – 187**
  Amir Beck and Yuval Beck

**PAT1: Chair TBD**

**Pattern Analysis and Machine Intelligence 1**

- **Metric Learning Using Labeled and Unlabeled Data for Semi-Supervised/Domain Adaptation Classification – 146**
  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**
  Haim Shalelashvili, Tali Bitan, Alex Frid, Hananel Hazan, Stav Hertz, Yael Weiss and Larry Manevitz
- **Genetic Algorithms on Genetic Data: The Motif-Finding Problem – 228**
  Miriam Manevitz and Moshe Samson
- **Detecting, Modeling and Tracking of a Short-Term Mutual Awareness Activity – 230**
  Meir Cohen, Ehud Rivlin and Ilan Shimshoni

## CIR3: Chair TBD
## Circuits 3

- **RF CMOS Active Metamaterial Wide-Band Controllable Array – 53**
  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**
  Alex Zviagintsev, Igor Brouk, Yael Nemirovsky and Ilan Bloom
- **Designing High-Speed Signal Distribution for Multi-Drop Connection Using Simulations – 169**
  Shai Sayfan-Alman, Vladimir Vulfin and Moti Haridim
- **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

## MED2: Chair TBD
## Engineering in Medicine and Biology 2

- **Collaborative Detection Of Common Lines In Cryo EM Images – 161**
  Mor Cohen, Yoel Shkolnisky 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
- **A Method for Quantifying Visual Search Scanpath Efficiency in Elucidating Cognitive Status Post-Traumatic Brain Injury – 242**
  Gerry Leisman, James Gilchriest, Rafael Rodríguez-Rojas, Mario Estevez, Calixto Macahdo and Moshe Kaspi
- **Measurement of Disrupted Axonal Fiber Connectivity in the Evaluation of Consciousness – 243**
  Gerry Leisman, Rafael Rodríguez-Rojas, Karla Batista, Yasser Iturria, Calixto Macahdo and Juan Morales

**EMAN + VEH: Chair TBD**

**Engineering Management + Vehicular Tecnology**

- **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

# Thursday, December 4, 2014

# Session 4: 16:20-18:20

**SP4: Chair TBD**

**Signal Processing 4**

- **A Study of 3D Audio Rendering by Headphones – 40**
  Eran Hadad, Dmitry Fishman, Elior Hadad and Sharon Gannot
- **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

**COM3: Chair TBD**

**Communications 3**

- **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 Yozevitchand 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

**POW2: Chair TBD**

**Power 2**

- **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 Fainguelernt, 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 Kand Vinaya Babu A
- **Occlusion Handling Method for Object Tracking Using RGB-D Data – 35**
  Ariel Benou, Itay Benou and Rami Hagage

**MW1: Chair TBD**

**Microwaves and Antennas 1**

- **High Power RF Devices Based on High Temperature Superconductors – 87**
  Eldad Holdengreber,Moshe Mizrahiand 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

**PHO: Chair TBD**

**Photonics**

- **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

**IT1: Chair TBD**

**Information Theory 1**

- **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 Permuterand 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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# Session 5: 8:30-10:40

**SP5: Chair TBD**
**Signal Processing 5**

- **Model Identification of a Robotic Arm with Joint PID Controller – 44**
  Avishai Sintovand 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

**COM4: Chair TBA**
**Communications 4**

- **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

**POW4: Chair TBA**
**Power 4**

- **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 Mellincovsky, Yoram Horen and Saad Tapuchi
- **Analysis of Supercapacitor Bank with Uncontrolled Active Balancer - 95**
  Vladimir Yuhimenko, Moshe Averbukh, Grigori Agranovich and Alon Kuperman

## PAT3: Chair TBD
## Pattern Analysis and Machine Intelligence 3

- **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


## MW2: Chair TBD
## 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
- **Design Of E-Plane T-Junction Dividers Using Substrate Integrated Waveguide (SIW) – 24**
  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


## ED + AERO: Chair TBD
## Electron Devices + Aerospace Systems

- **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

## IT2: Chair TBD
## Information Theory 2

- **Worst Additive Noise: an Information-Estimation View – 130**
  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

# Friday, December 5, 2014

# Session 6: 11:00-12:50

**SP6: Chair TBD**

**Signal Processing 6**

- **Texture Enhancement using Diffusion Process with Potential – 155**
  Emmanuel Cohen, Yehoshua Zeevi and Laurent Cohen
- **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 Yeredorand 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 Karakonstatis**

**Special Session 7: Dependable and Energy Efficient SOC Design in Scaled 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

**SS POW2: Chair Sigmond Singer**

**Special Session 2: Power Electronics for Energy Systems 2**

- **Comparison of Large Photovoltaic Power Plants with Conventional Ones and Prospects for Photovoltaic Plants use in Israel – 52**
  M Slonim, L Pregerman and B Medres
- **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**
  Ofer Ezra and Mor Peretz

**LAS: Chair TBD**

**Lasers and Electro Optics**

- **Application of Coupled-Mode Formalism to Analysis of Holey Photonic Crystals – 63**
  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

**MW3: Chair TBD**

**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 Cip 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