

IVS -2011: Program

08:30 - 09:00 Registration

09:00 - 09:10 Greetings

**09:10 - 10:00 Plenary lecture: David G. Castner, University of Washington,
"Surface Characterization of Immobilized Peptides and Proteins"**

10:00 - 10:15 Coffee break

10:15 - 12:25 Parallel sessions:

Biomaterial Interfaces (BI)	Surface Imaging (SI)	Surface Phenomena (SP)	Vacuum Technology (VT)
Chair: S. Margel, BIU	Chair: A. Lewis, HUI	Chair: N. Shamir, NRCN	Chair: O. Afek, Odem

12:25 - 14:20 Lunch + poster session

14:20 - 16:30 Parallel sessions:

Microelectronic Devices (MD)	Surface Spectroscopy and Molecular Electronics (SS)	Heterogeneous Catalysis (HC)	Renewable Energy (RE)
Chair: Y. Roizin, Tower	Chair: H. Cohen, WIS	Chair: M. Landau, BGU	Chair: Y. Rosenwaks, TAU

16:30 - 16:45 Coffee break

**16:45 - 17:35 Plenary lecture: Antoine Kahn, Princeton University,
"Organic Electronics: a world of interfaces"**

17:35- 18:00 Distribution of prizes and concluding remarks

Morning Parallel Sessions

Biomaterial Interfaces (BI), Session chair: Shlomo Margel (BIU)

1	10:15-10:40	Daniel Cohn , "Engineering Switchable Polymeric Surfaces", (invited).
2	10:40-11:05	Aharon Gedanken , "Coating a Large Variety of Surfaces by the Sonochemical Methods: Anti Bacterial, Anti Viral, Anti biofilms and Antifungai Coatings on Textiles and Glasses", (invited).
3	11:05-11:25	Nadav Amdurski , "Quantum Confinement, Piezoelectricity and Second Harmonic Generation in Peptide Nanostructures and Proteins".
4	11:25-11:45	Hadas Skaat , "Synthesis and Characterization of Uniform Iron Oxide Core-Shell Nanoparticles for Diagnostics & Inhibition of Neurodegenerative Diseases".
5	11:45-12:05	Nurit Ashkenasy , "Electronic Behavior of Peptide Nanotubes".
6	12:05-12:25	Daniel Nessim , "The Issue of Control in Carbon Nanotube Synthesis: Insights on the Role of Catalyst, Underlayer, and Precursor Gases".

Surface Imaging (SI), Session chair: Aaron Lewis (HUJ)

1	10:15-10:40	Ohad Medalia , "Structural Analysis of Cellular Processes by Cryo-Electron Tomography" (invited).
2	10:40-11:05	Chaim N. Sukenik , "Chemical Engineering of Surfaces and the Role of Scanning Probe Microscopy-Based Techniques in their Characterization" (invited).
3	11:05-11:30	Erez Hasman , "Nanoscale Spinoptics in Plasmonics" (invited).
4	11:30-11:45	Talia Yeshua , "Voltage Controlled Fountain Pen Nanolithography".
5	11:45-12:05	Sidney R. Cohen , "Molecular-Level Imaging of Opto-Mechanical Switching in Self-Assembled Monolayer Films Containing the Azobenzene Group".
6	12:05-12:25	Alon Litman , "Fast E-beam Microscopy for High Volume IC Inspection".

Surface Phenomena (SP), Session chair: Noah Shamir (NRCN)

1	10:15-10:40	Yshay Manassen , "Islands as Nanometric Probes of Strain Distribution in Heterogeneous Surfaces" (invited).
2	10:40-11:05	Alexander Vaskevich , "Chemical Reshaping of Evaporated Gold Island Films"
3	11:05-11:25	Yoav Kalcheim , "Long-Range Proximity Effect in $\text{La}_{2/3}\text{Ca}_{1/3}\text{MnO}_3/(100)\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Ferromagnet/Superconductor Bilayers: Evidence for Induced Triplet Superconductivity in the Ferromagnet"
4	11:25-11:45	Nadav Avidor , "Highly Ordered Water Structures on an Oxygen Precovered Ruthenium Surface"
5	11:45-12:05	Eithan Baibich , "Thermal Stability of Thermionic Electron Emission from a Thin Polycrystalline CVD Diamond Layer".
6	12:05-12:25	Shai Cohen , "Water Chemisorption on a Sputter Deposited Uranium Dioxide Film – Effect of Defects"

Vacuum Technology (VT), Session chair: Ori Afek (Odem)

1	10:15-10:40	Geoff Lempert , "Non-Evaporable Getters and a Review of Ultra High Vacuum Pumping Technology" (invited).
2	10:40-11:05	Aileen O'Mahony , "Structural and Electrical Characterisation of High-k Gate Oxide Structures Deposited by Atomic Layer Deposition" (invited).
3	11:05-11:25	Luca Cascella , "TwisTorr: a New Molecular Drag Technology".
4	11:25-11:45	A. Conrad , "High Vacuum Side Channel Pump Working Against Atmosphere".
5	11:45-12:05	Michael Zeuner , "High Precision Finishing of Optical Elements by Advanced Sample Movement in Vacuum Processes".
6	12:05-12:25	Nahum Cohen , "New Sorption Pumps with Mechanical Activation".

Afternoon Parallel Sessions

Microelectronic Devices (MD), Session chair: Yaakov Roizin (Tower)

1	14:20-14:45	Moshe Eizenberg , "Metal / High-k Dielectric Gate Stacks for Advanced MOS Devices" (invited).
2	14:45-15:10	Inbar Dag , "The Investigation of Leaky Diodes in InSb Infrared Detectors" (invited).
3	15:10-15:30	Allon Parag , "Process Design Platform for 700V Power Management Integrated Circuit Technology".
4	15:30-15:50	Shaul Michaelson , "Synchrotron Radiation X-Ray Photoelectron Spectroscopy Study of Initial Stages of High-k HfO ₂ Films Formation on Different Substrates Deposited by ALD".
5	15:50-16:10	Evgeny Pikhay , "Radiation Sensor Based on C-Flash Floating Gate Device".
6	16:10-16:30	Rakefet Ofek Almog , "Electrochemical Micro Technologies for Polymeric Actuator Devices".

Surface Spectroscopy and Molecular Electronics (SS), Session chair: Hagai Cohen (WIS)

1	14:20-14:45	Eli Kolodney , "Ion Beam Synthesis, Reactive Sputtering, and Secondary Ion Mass Spectrometry in Fullerene-Surface Single Impacts" (invited).
2	14:45-15:10	Gil Alexandrowicz , "A Magnetically Focused Molecular Beam of Spin Selected Ortho-Water" (invited).
3	15:10-15:30	Omer Yaffe , "Charge Transport across Metal/Molecular (alkyl) Monolayer-Si Junctions is Dominated by the LUMO Level".
4	15:30-15:50	Rotem Har-Lavan , "Near-ideal Schottky-Mott Behavior of n-Si / Hg Diodes with Hydroquinone-Alcohol Monolayers".
5	15:50-16:10	Oren Tal , "Wiring up an Organic Molecule with Metallic Chain of Atoms".
6	16:10-16:30	Iris Visoly-Fisher , "Controlling Photo-Induced Charge Transfer Direction at Porphyrin/ ITO Interfaces".

Heterogeneous Catalysis (HC), Session chair: Miron Landau (BGU)

1	14:20-14:45	David Avnir , "Organically Doped Metals - a New Family of Heterogeneous Catalysts" (invited).
2	14:45-15:10	Micha Asscher , "The Role of Reduced Oxide Sites on the Stability, Morphology, Reactivity and Selectivity of Supported Bimetallic Clusters" (invited).
3	15:10-15:30	R. Vidruk , "Grain Boundaries in Nanocrystalline Assemblies of Ionic Mesoporous Materials as a Viable Source of Catalytic Active Sites".
4	15:30-15:50	Anat Milo , "Solid Chiral Titanium Phosphonates for Enantioselective Catalysis".
5	15:50-16:10	D. S. Simakov , "Autothermal Membrane Reformer for Hydrogen Generation from Natural Gas".
6	16:10-16:30	M. Herskowitz , "Alternative and Renewable Fuels for Transportation: the Need for Advanced Catalytic Processes"

Renewable Energy (RE), Session chair: Yossef Rosenwaks, TAU

1	14:20-14:50	David Cahen , "Assessing Possibilities & Limits for Solar Cells" (invited).
2	14:50-15:10	Y. Kaminski , "A Novel Type of Silicon Solar Cells".
3	15:10-15:30	Gideon Segev , "Detailed Modeling of Photon Enhanced Thermionic Emission for Solar Energy Conversion".
4	15:30-15:50	Stella Itzhakov , "The Energy Band Alignment of CdSe Quantum dots Adsorbed on TiO ₂ Electrodes".
5	15:50-16:10	Boaz Almog , "Enhanced Superconducting Magnetic Levitation".
6	16:10-16:30	Aharon Gedanken , "Converting Oils, Cooked Oils, and Algae into Biodiesel in a very Fast Process with a Very High Yield (~100%)".

List of Posters

Biomaterial Interfaces

- P-BI -01** **When Solid State Physics Meets Proteins:
A Current - Voltage - Temperature approach to “Bio-Electronics”**
L. Sepunaru, WIS
- P-BI -02** **Osteonal Bone: Mechanical Properties and Structure of the Elementary Units**
A. Faingold, WIS
- P-BI -03** **Phase Transition in Bioinspired Supramolecular Quantum Nanostructure**
A. Handelman, TAU

Surface

- P-S -01** **Hydrocarbon Thermal Stability and Bonding Configuration on the Surface of
Polycrystalline Diamond Films Exposed to Water and Ambient Environment Studied
by High Resolution Electron Energy Loss and X-ray Photoelectron Spectroscopies**
Sh. Michaelson, Technion
- P-S -02** **Surface Modified Thin Film Oxygen Electrode**
O. Berkh, TAU
- P-S -03** **XPS Studies of Cobalt Out-Diffusion at the Initial Stages of Polycrystalline Diamond
CVD Formation onto WC-10%Co Substrates**
E. Hojman, Technion
- P-S -04** **Temperature Effects on the Hydride Growth on Oxide-Coated Gadolinium Surfaces:
Preferred Orientations**
D. Schweke, NRCN
- P-S -05** **Dislocation Structure And Hardness Of Surface Layers Under Friction Of Copper In
Different Lubricant Conditions**
A. Laikhtman, HIT
- P-S -06** **XPS Study of Antimony Doped and Sulfide Treated ZnO Films**
T. Bendikov, WIS

Microelectronic Devices

- P-MD-01** **Hybrid Peptide - Inorganic Materials for Electronic Applications**
M. Matmor, BGU
- P-MD-02** **Nano-Imprinting Lithography of P(VDF-TrFE-CFE) and Poly(dimethylsiloxane) (PDMS) for Integrated Multi-polymer MEMS Devices**
J. Shklovsky & L. Engel, TAU
- P-MD-03** **High-k Dielectrics as Gate Insulators for Nano-Bio-Sensing**
D. Gal, TAU

Interface

- P-I -01** **Controlling Si Space Charge by Oxide-Free, Dipole-Varying alkyl Monolayers**
T. Toledano, WIS
- P-I -02** **Thermal and Electron Irradiation Induced Interaction of MMA and Benzene on TiO₂ Surfaces: Model Study of EUVL Mirror Contamination**
S. Zalkind, NRCN
- P-I -03** **Assessing the Solvation Numbers of Electrolytic Ions Confined in Carbon Nanopores under Dynamic Charging Conditions**
S. Sigalov, BIU
- P-I -04** **Raman Isotopic Effect of Hydrogen-Deuterium in Grain Boundaries of Polycrystalline Diamond Films**
I.Y. Koenka, Technion

Nano Structure

- P-NS-01** **Covalent Coating of CNTs as Cleavage Protection in High Power Sonication Process**
R. Shapira, BIU
- P-NS-02** **Synthesis and Characterization of GaS Closed Cage Nanoparticles**
O. Sima, WIS
- P-NS-03** **Effect of CNT Structure on Nanocomposites Toughness**
N. Lachman, WIS
- P-NS-04** **Improved Desalination Performance in Capacitive Deionization Achieved by Carbon Surface Treatment.**
I. Cohen, BIU

- P-NS-05** **Atomically Flat Al Films: Preparation and Applications**
I. Levine, WIS
- P-NS-06** **The Role of Carrier Gas and Diffusion in Thermal Evaporation Growth of (ZnO) Nanowires**
G. Burshtein, Technion
- P-NS-07** **Bismuth Catalyzed Growth of SnS₂/SnS Nanotubes**
G. Radovsky, WIS
- P-NS-08** **Quality Factor of Atomic Force Microscopy Cantilevers at HV and UHV**
F. Zypman, Yeshiva University, New York
- P-NS-09** **Insights on Nano-Compression of WS₂ Inorganic Structures: a Finite Element Study**
E. Kalfon-Cohen, WIS
- P-NS-10** **Electronic Properties of Hybrid Semiconductor-Metal Nanoscale Inorganic Cages**
Y. Bekenstein, HUJI
- P-NS-11** **Photocatalytic Reduction of Cr(VI) by Titanium Dioxide Coupled to Functionalized CNTs: An Example of Counter - Productive Charge Separation**
N. Shaham Waldmann, Technion
- P-NS-12** **Photo-Transport Measurements on Single Nanorods Wired Using Electron Beam Induced Deposition**
O. Wolf, HUJI
- P-NS-13** **Self Assembly of Single Wall Carbon Nanotube (SWNTS) Templates Based on Genetically Engineered Virus**
A. Sweedan, Technion

Renewable Energy

- P-RE-01** **Band Diagram Determination of Sb₂S₃ ETA Solar Cells by XPS**
Y. Itzhaik Alkotzer, WIS
- P-RE-02** **Correlation of Macroscopic Photovoltaic Behavior and Microscopic Electrical Characteristics for Cu(In_{1-x}Ga_x)Se Thin Films: Influence of Composition**
W. Li, WIS
- P-RE-03** **Fluorinated Carbonate Electrolytes for High Performance Si-Nanowire Li-ion Battery Anodes**
V. Etacheri, BIU
- P-RE-04** **MoO₃/CNT Composite Electrodes for Pseudo Super Capacitors**
S. Okashy, BIU
- P-RE-05** **Unexpected Electron Injection from CdS/CdSe Quantum dot Absorbers into Flat and Mesoporous ZrO₂ Films**
S. Greenwald, BIU
- P-RE-06** **TiO₂ Thin Layer Chromatography as Dye Sensitized Solar Cells Performance Evaluation Tool**
S. Tirosh, BIU

- P-RE-07 Amorphous Silicon Film Electrodes as High Capacity Anode for Li-Ion Sulfur Battery**
R. Elazari, BIU
- P-RE-08 Deposition of ZnO-Based Films for Extremely Thin Absorber Photovoltaic Devices**
N. Kedem, WIS
- P-RE-09 Molecular Imprinting on a Photo-Catalytic Substrate and its Effects**
M. Nussbaum, Technion
- P-RE-10 Quantum Dot Based Anode and Cathode for High Voltage Tandem Photo-Electrochemical Solar Cell**
M. Shalom, BIU
- P-RE-11 New Organometallic Solutions with High Anodic Stability for Rechargeable Magnesium Batteries**
I. Sterenberg, BIU
- P-RE-12 Improving the Stability of $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ as a Cathode Material for 5 V Li-ion Batteries by ZnO and MgO Coatings**
H. Sclar, BIU
- P-RE-13 Improvement of Open-Circuit Voltage of ZnO-based Semiconductor Sensitized Solar Cell by Chemical Bath Deposited Dense Underlayer**
E. Edri, WIS
- P-RE-14 $x\text{Li}_2\text{MnO}_3(1-x)\text{LiMO}_2$ (M=Mn, Ni, Co) Materials for Cathodes of Advanced Li-ion Batteries: Structural Analysis , Electrochemical Behavior and Surface Chemistry**
D. Sharon, BIU
- P-RE-15 Highly Stable and Accurate Sun Follower System**
A. Axelevitch, HIT