

23rd IVS Annual Conference and Technical Workshop
Monday, September 27, 2004
Exhibition Halls (*Ganei ha Ta'aruchah*), Bitan 1, Tel Aviv
Program

08:15- 09:15 Registration

08:30 Opening of Commercial Exhibition

09:15- 09:40 Plenary Session - C6 Hall

Chairperson, Y. Rosenwaks, TAU

09:15-09:20 Greetings, Y. Rosenwaks, IVS President

**09:20-09:30 * Award of Edwards Research Excellence Prize
to Yoram Shapira, TAU
(Sponsored by Edwards Israel Vacuum part of BOC Edwards)
by Lev Atingen, Customer Service Manager**

**09:30-09:40 * Award of ELOP Technician's prize to TBA
(Sponsored by ELOP)
by Haim Rousso, ELOP Managing Director**

09:40 – 12:00 Parallel Morning Sessions

Session CG - Crystal Growth – C5 Hall

Chairpersons – S. Brandon, Technion and M. Pinkas, NRCN

**09:40-10:10 CG-1 On some essential problems in numerical modeling of melt flow
in bulk crystal growth
A. Gelfgat, TAU**

**10:10-10:40 CG-2 Growth of PbTe semiconductor single crystals by the Czochralski
technique
A. Jarashneli, BGU**

10:40-11:00 *Coffee Break*

**11:00-11:30 CG-3 Inorganic bronze coatings on ceramic foams
M. Mann, Technion**

**11:30-12:00 CG-4 Semiconductor nanoparticles on polyconjugated Langmuir film
templates
Y. Golan, BGU**

Session SS - Surface Science & Technology – C6 Hall

Chairperson – M. Asscher, HU

- 09:40 - 10:00 **SS-1** Surprising electronic properties of organized organic layers
R. Naaman, WIS
- 10:00- 10:20 **SS-2** Dissociative adsorption of O₂ onto transition metals:
A theoretical view point
Y. Zeiri, NRCN
- 10:20-10:40 **SS-3** Anomalous superconductor proximity effects in gold coated
YBa₂Cu₃O_{7-δ} films studied by scanning tunneling spectroscopy
O. Millo, HU
- 10:40-11:00 *Coffee Break*
- 11:00-11:20 **SS-4** Hydrogen in nano-diamond films
A. Hoffman, Technion
- 11:20-11:40 **SS-5** The initial interaction of water vapor with beryllium surface
S. Zalkind, NRCN
- 11:40-12:00 **SS-6** Enhancing the selectivity of titanium dioxide: why and how
Y. Paz, Technion

Session VT – Vacuum Technology – C4 Hall

Chairperson – D. Hamawi, NRCN (lectures in Hebrew)

- מקורות חדשים לניקוי פני שטח ע"י מימן אטומי ושיטות לאפיון פני השטח
המתקבלים בניקוי
חיים גורדון, אל-סול **VT-1** 9:40-10:20
- TBA **VT-2** 10:20-10:40
- הפסקת קפה 10:40-11:00
- משאבת וקואום קריאוגנית לאידי מים ליישום בתעשיית חצאי המוליכים
נחמן פונדק – ריקור **VT-3** 11:00-11:40
- TBA **VT-4** 11:40-12:00

- 12:00–15:00 * Poster Session**
*** Commercial Exhibition**
*** Sandwich Buffet**

15:00- 17:20 Parallel Afternoon Sessions

Session SPT – Space Technology - C4 Hall

Chairperson – R. Cohen, ELOP

- 15:00-15:30 **SPT-1** TAUVEEX - an Israeli telescope array for the space ultraviolet
N. Brosch, TAU
- 15:30-16:00 **SPT-2** Electro-optical Sensors in Space
J. Topaz, ELOP
- 16:00-16:20 *Coffee Break*
- 16:20-17:00 **SPT-3** Materials and structures in space engineering

D. Durban, Technion

17:00-17:20 SPT-4 The thermal balance test of ‘AMOS-2’ spacecraft
 Z. Sherman, MBT/I.A.I

Session NM-Nanomaterials - C6 Hall

Chairpersons – Y. Golan, BGU and A. Frydman, BIU

15:00 – 15:20 NM-1 Formation and applications of nanoparticles
 S. Magdassi, HU

15:20 – 15:40 NM-2 Thin films of magnetic oxide nanocrystals
 G. Markovich, TAU

15:40 – 16:00 NM-3 Symmetrical and non-symmetrical nano & micron-scaled particles of narrow size distribution: synthesis, characterization and potential applications
 S. Margel, BIU

16:00 – 16:20 *Coffee Break*

16:20 – 16:40 NM-4 Nanotubes made of nanoparticle building blocks
 I. Rubinstein, WIS

16:40 – 17:00 NM-5 The structure of organic thin films on mercury
 M. Deutsch, BIU

17:00 – 17:20 NM-6 Nanorods, nanowires, and between them
 S. Efrima, BGU

Session TF-Thin Films, Electronic & Optoelectronics Devices - C5 Hall

Chairperson – Y. Paz, Technion

15:00 – 15:20 TF-1 Unraveling the mystery of photovoltaic performance in polycrystalline solar cells
 S. Cohen, WIS

15:20 – 15:40 TF-2 Transport in organic devices
 N. Tessler, Technion

15:40 – 16:00 TF-3 Coming to terms with molecules and atoms – toward a viable chemical methodology for the bottom-up fabrication of nanodevices
 J. Sagiv, WIS

16:00 – 16:20 *Coffee Break*

16:20 – 16:40 TF-4 MEMS for RF Applications
 Y. Nemirovsky, Technion

16:40 – 17:00 TF-5 Process optimization of oxide CMP for scratch level improvement
 T. Efrat, Tower

17:00 – 17:20 TF-6 Amphoteric dopants in barium titanate- based devices
 Y. Tsur, Technion

17:20 – 18:00 Plenary Lecture - C6 Hall

Chairperson - D. Cahen, WIS

Plenary Lecture Shaping matter on the atomic scale: from AFM-induced nanomachining to single-atom devices
 Th. Schimmel, Karlsruhe University

18:00 - Student presentation competition prizes, including Esterman and Roth Funds prizes and prizes sponsored by Rafael, Crystal Growth Society, and the Israel IEEE-Electron Device Society.

Light refreshments (Sponsored by New Technology)

List of posters

Nanomaterials

P-NM-1 Organic-Inorganic Nanocomposite Coatings for Biomedical Applications

P. Bar-Yosef Ofir, HU

P-NM-2 Organic-Inorganic Nanocomposite Coatings for Biomedical Applications II

P. Bar-Yosef Ofir, HU

P-NM-3 Conductance Properties of Nano-Dumbbells

R. Costi, HU

P-NM-4 Tunneling Spectroscopy of Gold-Tipped CdSe Nanorods

D. Steiner, HU

P-NM-5 Zero- and One-dimensional Effects in Semiconductor Nanorods

D. Steiner, HU

P-NM-6 SPM and Charge Transport Measurements Through DNA Molecules of Complex Sequence

H. Cohen, HU

P-NM-7 Synthesis of InP and InAs Quantum Rods Using Myristic Acid

I. Shweky, A. Aharoni, HU

P-NM-8 Improved Wetting of Nanocrystalline PbSe on Si(100) by Surface Modification

M. Shandalov, BGU

P-NM-9 Computational Study of Compositional Structure Transitions in Alloy Nanocluster Systems

L. Rubinovich, BGU

P-NM-10 TiO₂ in Situ Synthesis in Polymers

O. Melamed, BIU

P-NM-11 Advanced Methods of Measuring the Physical Properties of A Single

Magnetic Nanoparticle

E. Meridor, BIU

P-NM-12 The Effect of Geometry on the Magneto-Transport Properties of Insulating Granular Ferromagnets

A.Y. Dokow, BIU

P-NM-13 Sub-Molecular Chemically Resolved Electrical Measurements of Organic Monolayers

H. Cohen, WIS

P-NM-14 Synthesis of Inorganic Fullerene-like Nanoparticles of TaS₂

C. Schuffenhauer, WIS

P-NM-15 Electric Transport Properties of the Fullerene-Like WS₂ Nanoparticles

F. Kopnov, WIS

P-NM-16 Atomic Step-Templated Formation of Single-Wall Carbon Nanotube Patterns

A. Ismach, WIS

P-NM-17 Direct Tensile Tests of Individual WS₂ Nanotubes

I. Kaplan-Ashiri, WIS

P-NM-18 Novel Routes to Nanoparticle Binding at Interfaces

K. Carmi, WIS

P-NM-19 Template Synthesis of Nanoparticle Nanotubes (NPNTs)

T. Sehayek, WIS

P-NM-20 Origin of the Lattice Expansion in Nanocrystalline Ceria

A. Kossy, WIS

P-NM-21 Self-Organization in Nanocrystalline Ferroelastic Grains

I. Ebralidze, WIS

P-NM-22 A Direct Measurement of G- Factors in II-VI and III-V Core-Shell Nanocrystals

L. Fradkin, Technion

P-NM-23 Carbon Nanotube Sites for Neuronal Patterning

T. Gabay, TAU

P-NM-24 Ultra High Vacuum Kelvin Probe Force Microscopy of Multi Quantum Wells

A. Schwarzman, TAU

P-NM-25 Ferroelectric Domain Engineering Using Atomic Force Microscopy Tip Arrays

D. Dahan, TAU

P-NM-26 Nanoscale Measurement of Surface States Concentration and Their Energy Distribution in Semiconductors

S. Saraf, TAU

P-NM-27 Nanodomain Wall Pinning in LiNbO₃ Single Crystal

A. Agronin, TAU

P-NM-28 Study of Hot-Carrier-Induced Photon Emission From 90nm Si Mosfets

M. Borenshtein, A. Margulis, Freescale Semiconductor Israel Ltd

P-NM-29 Dynamical characterization of nanomechanical devices using SEM

R. Almog, Technion

P-NM-30 Magneto-transport properties of dilute granular ferromagnets

A. Cohen, BIU

P-NM-31 Selective Growth of Metal Contacts Onto Semiconductor Quantum Rods

and Tetrapods
T. Mokari, HU

Crystal Growth And Epitaxy

P-CG-1 Molecular Simulations of Solute/Crystal Interfaces in Protein Solution Systems
R. Gal, Technion

P-CG-2 Surface Energy Effects in Directional Melt Growth Systems Exhibiting Partially Facetted Melt/Crystal Interfaces
O. Weinstein, Technion

P-CG-3 Formation of InSb Quantum Dots by MOVPE in the Droplets Heteroepitaxy (DHE) Growth Mode
S. Shusterman, Soreq NRC

P-CG-4 Voltage Tunability of High Performance Zn Doped p-type QWIP Grown by MOVPE
N. Snapi, soreq NRC

P-CG-5 Optimization of Sapphire Growth Process using Numerical Simulation
M. Szanto, BGU

P-CG-6 Influences of the Deposition Parameters on the Structure, Orientation and Oxidation of Gadolinium Layers
A. Nissim, BGU

P-CG-7 AFM as a tool for studying biomineralization of nanocrystals
A. Radko, BGU

P-CG-8 Femtosecond Laser Material Processing - How Short Is Short?
K. Zhang, WIS

Surface Science and Technology

P-SS-1 Water As Buffer Layer for Cluster Growth on SiO₂
E. Gross, HU

P-SS-2 Interactions of Water Vapor with Polycrystalline Uranium Surfaces
E. Tiferet, BGU

P-SS-3 Double Heat Flux Probe for Cold Plasma Measurements
G. Makrinich, HAIT

P-SS-4 The "Layer exchange method"- A Way To Control the Molecular Conformation and Dynamics of Dithiol-SAM Formation
G. Meshulam, TAU

Thin films, Electronic and Optoelectronic Devices

P-TF-1 Diffusion Welding Process Using Active Surface Techniques
V. Manevych, HAIT

P-TF-2 Electrical Transport Mechanism in VO₂ Thin Films Investigation
A. Axelevitch, HAIT

P-TF-3 Towards Molecular Electronic Device

A. Caster, TAU

P-TF-4 Towards Homogenous Peptide Nanotubes Thin Films

N. Hendler, TAU

P-TF-5 Nanoscale Electrical Measurements of Organic Transistors

O. Tal, TAU

P-TF-6 Thermally Stimulated Exoelectron Emission Studies of Traps in Thin Alumina Films

D. Aronov, TAU

P-TF-7 Deposition and Temperature Measurements in A Hot Refractory Anode Vacuum Arc With Different Anode Materials

A. Shashurin, A. Nemirovsky, TAU

P-TF-8 Surface Photovoltage of Au or InP/Tetraphenylporphyrin (TPP) Interfaces

H. Shaim, TAU

P-TF-9 Benzene Derivatives Adsorbed on Hydrogen Passivated Si (001): A First Principles Study

A. Natan, TAU

P-TF-10 Measurement System for Impedance Spectroscopy Over Large Frequency and Temperature Ranges

S. Baltianski, Technion

P-TF-11 Development of Thermal Sensor Based on PbTe Thin Films in MEMS Design

E. Rabih, BGU

P-TF-12 Gixd Investigation of Polydiacetylene Langmuir Films

Y. Lifshitz, BGU

P-TF-13 Extending The Current Collector Into the Nanoporous Matrix of Dye Sensitized Electrodes

A. Ofir, BIU

P-TF-14 TiO₂/P3OT Inter-Penetrating Electrodes for Solid Solar Cells

A. Landau, BIU

P-TF-15 Applied Magnetic Field Rejects the Coating of Ferromagnetic Carbon from the Surface of Ferromagnetic Cobalt : RAPET of CoZr₂(acac)₂(OⁱPr)₈

V. G. Pol, BIU

P-TF-16 Improvement of Dye Sensitized Solar Cell (DSSCs) Performance by Conformal Metal Oxide Coating of Nanoporous Titania Photoelectrodes

S. Kotlyar, BIU

P-TF-17 The Structures Heredity in to Thick Films of the High Temperature Superconductors(HTSC) After Electromagnetic Separation of HTSC-powders.

E. Broide, Separator LTD

P-TF-18 Unexpected Magnetism Observed in Silanes Modified Silicon Surface

R. Artzi, WIS

P-TF-19 Towards Understanding Charge Transport Through Organic Molecules:

Fabrication and Measuring of Si- C_nH_{2n+1} /Hg junctions.

A. Salomon, WIS

P-TF-20 Making Electrical Contacts to Molecules

O. Niitsoo, WIS

P-TF-21 Oriented Bacteriorhodopsin Monolayer-Based Bio-opto-electronic Junctions Via Vesicle Fusion

Y. Jin, WIS

P-TF-22 The Role of the Built-in Electric Fields in Dye-Sensitized Solar Cells

S. Rühle, WIS

P-TF-23 Chemical Bath Deposition Quantized CdS/CdSe Absorber Inside Mesoporous, Nanocrystalline TiO_2 Films

O. Niitsoo, WIS

P-TF-24 Deposition of Metal Chalcogenide Films on Mesoporous TiO_2 Substrates

S. K. Sarkar, WIS

P-TF-25 Electronic Transport Through Molecular Monolayers: Are There Electronic Effects of Binding?

S. Tsury, WIS

P-TF-26 Bacteriorhodopsin Monolayers on Solid Support for Optoelectronics: Orientation and Photoelectric Response

T. He, WIS

P-TF-27 The Effect of Hydrogen on Thin Vanadium Films

J. Bloch, NRCN

P-TF-28 Investigation of the Magnetron Sputtering W Films by the Method of Saxs

L.Skatkov, PCB "Argo"