



IVS-IPSTA 2021 - 39th Annual Conference - ONLINE November 17, 2021

Please click on the hyperlink to each session (underlined in <<blue>>) to be directed to the respective Zoom sessions

9:15 << Opening Remarks >> – Gilbert Daniel Nessim (BIU), IVS President

Plenary Session

9:30 **Yi Cui (Stanford)**
Reinventing Batteries Through Materials Design
 Chair: Doron Aurbach (BIU)

10:10 Break

10:20 Morning Parallel Sessions

<< Surface Science >>

Chair: Baran Eren (WIS)

10:20 **Leo Gross (IBM Zurich) Keynote**
Molecular reactions, charge transitions and excited states investigated by AFM

10:40 **Martin Castell (Oxford) Keynote**
Multiple frame averaging of scanning tunneling microscope images

11:00 **Nurit Avraham (WIS) Invited**
Visualization of Topological Boundary Modes Manifesting Topological Nodal-Point Superconductivity

11:15 **Oded Millo (HUJI) Invited**
Magnetic-like states and triplet superconductivity induced in a conventional superconductor upon chiral molecules adsorption

11:30 **Sidney Cohen (WIS) Contributed**
In-situ measurement of the influence of ice-binding proteins on ice growth by atomic force microscopy in aqueous solutions

11:40 **Elad Gross (HUJI) Contributed**
What makes a catalyst active? Insights from IR nanospectroscopy measurements on single nanoparticles

11:50 **Roundtable Discussion**
 Moderator: Sidney Cohen (WIS) Panel members: Michael Stern (BIU), Andrea Morello (Univ. New S. Wales, Australia)
Atomic-scale manufacturing, surface science and quantum circuits

<< Energy and Catalysis >>

Chair: Gil Shalev (BGU)

10:20 **Avner Rothschild (Technion) Keynote**
Decoupled Water Splitting for Green Hydrogen Production at Scale

10:40 **Nir Tessler (Technion) Keynote**
Device Synthesis applied to Organic Solar Cells

11:00 **Rafi Shikler (BGU) Invited**
On the effect of the finite conductivity and dielectric nature of ITO on the performance of organic based optoelectronic devices

11:15 **Gideon Segev (TAU) Invited**
Operando characterization of charge extraction and recombination profiles in solar cells with nanoscale resolution

11:30 **Igor Rahinov (OUI) Contributed**
The Kinetics of NH₃ Desorption and Diffusion on Pt: Implications for the Ostwald Process

11:40 **Isaac Buchine (BIU) Contributed**
How does Humidity Affect Halide Perovskites' Mechanical Properties?

11:50 **Roundtable Discussion**
 Moderator: Doron Aurbach (BIU)
Energy challenges that we face today, the Israeli corner

<< Nanoelectronics & Spintronics >>

Chair: Ilan Shalish (BGU)

10:20 **Andras Kis (EPFL) Keynote**
Logic-in-Memory Based on an Atomically Thin Semiconductor

10:40 **Zeev Zalevsky (BIU) Keynote**
Silicon-integratable tunable photonic nano-circuitry involving energetically efficient and hardware security architecture

11:00 **Ron Folman (BGU) Invited**
Quantum optics on the atom chip

11:15 **Leeor Kronik (WIS) Invited**
Understanding collective effects that drive molecular spintronic devices

11:30 **Yaakov Tischler (BIU) Contributed**
Low-Frequency Ramman to Characterize Layered Materials

11:40 **Subhrajit Mukherjee (Technion) Contributed**
Opto-Electronic Modulation of the Monolithically Integrated Ferroelectric-Semiconductor Heterojunction for Multibit Memory devices

11:50 **Roundtable Discussion**
 Moderator: Yossi Paltiel (HUJI)
 Panel members: Uriel Levi (HUJI)
Future of Electronics

<< Plasma I >>

Chair: Reuven Boxman (TAU)

10:20 **Otto Landen (LLNL) Keynote**
Breakthrough in Inertial Confinement Fusion (ICF) on the NIF

10:40 **Hank Strauss (HRS Fusion) Contributed**
Solution of the Disruption Problem in ITER

11:00 **Nir Druker (Technion) Contributed**
Enhancement of Plasma Assisted Ignition by Multi-Voltage Pulse Discharges

11:15 **Yang Cao (Technion) Contributed**
The Non-Linear High-Power Microwave Complete Absorption Phenomenon in a Plasma Filled Waveguide

11:30 **Marko Cvejic (WIS) Contributed**
Spectroscopic measurements of the magnetic field curvature and self-rotating plasma

11:40 **Sharon Waichman (NRCN, Rotem Industries) Contributed**
Enhanced adhesion of boron carbide coatings on aluminum substrates

11:50 **Roundtable Discussion**
 Moderator: Reuven Boxman (TAU) Panel members: Otto Landen (LLNL-NIF), Sharon Waichman (NRCN/Rotem Industries), Michael Keidar (GWU), Hank Strauss (HRS Fusion), Asher Yahalom (Ariel U.), Amnon Fisher (RAFAEL)
Plasma for a Greener Earth

<< Flash Talks >>

Surface science and Soft & biological matter

<< Flash Talks >>

Energy and catalysis and Sensors & printing

<< Flash Talks >>

Nanoelectronics & spintronics and Nanomaterials & nanotechnology

<< Flash Talks >>

Plasma

12:20 << Wrap-up and introduction to afternoon program >>

12:30 << Exhibit booths >>

<< Poster session >>



13:20 Break

13:30 Afternoon Parallel Sessions

<< Sensors & Printing >>

Chair: Hila Elimelech (Plantish)

13:30 **Oded Shoseyov (HUJI) Keynote**
3D Printing; from tissues and organs to food and wood

13:50 **Yossi Rosenwaks (TAU) Keynote**
Ultra-Sensitive and Selective Sensing using CMOS Compatible Nanowire Transistors

14:05 **Vladimir Popov (Technion) Invited**
New modalities and facilities by Metal Additive Manufacturing Center

14:20 **Nurit Atar (SNRC) Invited**
3D Printing of Bismaleimide-Based Dielectric Materials

14:30 **Rajashree Konar (BIU) Contributed**
Robust Room-Temperature NO₂ Sensors from Exfoliated 2D Few-Layered CVD-Grown Bulk Tungsten Di-selenide (2H-WSe₂)

14:40 **Molly Stevens (ICL, London) Keynote**
Designing the bio-material interface for biomedical applications

15:00 **Roundtable Discussion**
 Moderator: Ehud Galun (MAFAT) Panelists from Rafael, Elbit and IAI
3D printing for defense applications

<< Soft & Biological Matter >>

Chair: Nadav Amdursky (Technion)

13:30 **Uri Raviv (HUJI) Keynote**
Mechanism of Virus Capsid Assembly

13:50 **Boaz Mizrahi (Technion) Invited**
Multi-Armed Polymers as Tissue Adhesives: Fundamentals to Applications

14:05 **Irit Rosenhek-Goldian (WIS) Contributed**
AFM for biophysical characterization of soft matter: from extracellular vesicles to cells and tissues

14:20 **Esti Toledo (BGU) Contributed**
Molecular Scale Spatio-Chemical Control of the Activating-Inhibitory Signal Integration in NK Cells

14:30 **Alireza Dolatshahi-Pirouz (DTU, Denmark) Invited**
Human-adaptable cyborg-like biomaterial sensors for healthcare monitoring

15:00 **Roundtable Discussion**
 Moderator: Nadav Amdursky
Bioderived Materials for Health Applications: Current challenges and opportunities

<< Nanomaterials & Nanotechnology >>

Chair: Hagay Shpaysman (BIU)

13:30 **Reshef Tenne (WIS) Keynote**
Inorganic nanotubes and fullerene-like nanoparticles at the crossroad between materials science and nanotechnology and their applications

13:50 **Gil Markovich (TAU) Invited**
Symmetry breaking in the formation of chiral nanocrystals

14:05 **Tamar Segal-Peretz (Technion) Invited**
Atomic layer deposition onto and within polymers for controlling interfaces and nano-structuring water filtration membranes

14:20 **Sujit Kumar (WIS, BIU) Contributed**
Evidence for Atomic Scale Structural Dynamics of the 2D-on-3D Halide Perovskite Interfaces

14:30 **Sivan Tzadka (BGU) Contributed**
Directly moldable functional nanostructures on plastic optical flat/curve components

14:40 **Oleg Gang (Columbia) Keynote**
Programmable Assembly of Nanoscale Architectures

15:00 **Roundtable Discussion**
 Moderator: Reshef Tenne (WIS)
Nanomaterials & Nanotechnology: the next 20 years

<< Plasma II >>

Chair: Joseph Lefkowitz (Technion)

13:30 **Michael Keidar (GWU) Keynote**
Adaptive Plasmas for Medical Applications

13:50 **Eduardo Ahedo (UC3M) Keynote**
Modeling propulsion plasma physics

14:05 **Dan Lev (Technion) Contributed**
Heaterless Cathode Technology for Plasma Propulsion Applications

14:20 **Omri Hamo (Technion) Contributed**
Optical Emission Spectroscopy Measurements of the Narrow Channel Hall Thruster Plume

14:30 **Amnon Fruchtman (HIT) Contributed**
Plasma-based mass separation by waves and space-charge fields

14:40 **Asher Yahalom (Ariel U.) Contributed**
A Three Function Variational Principle for Stationary Non-Barotropic Magnetohydrodynamics

14:50 **Amir Weinberg (Ariel U.) Contributed**
Dogleg design for an MeV Ultra-fast electron Diffraction beamline for the hybrid Photo-emitted RF GUN at Ariel University

15:00 **Roundtable Discussion**
 Moderator: Igal Kronhaus (Technion) Panel members: Space Plasmatix Ltd
Space Plasma Propulsion

15:20 Break

<< Plenary Session II >> Research Excellence Awardees: Noam Eliaz (TAU) & Milko van der Boom (WIS)

15:30 **Noam Eliaz (TAU): Electrodeposition in the Era of Additive Manufacturing**

15:50 **Milko van der Boom (WIS): Crystals and Thin Films Made in Israel**

16:10 << IVS Awards and Closing Remarks >>

16:30 << IVS General Assembly >>