The Israel Society for Astrobiology and the Study of the Origin of Life (ILASOL)

34th annual meeting April 20th, 2021

ILASOL: www.ilasol.org.il

Pre-register to participate:

https://weizmann.zoom.us/webinar/register/WN_lLs-tDIZQuSRYo-yruWPow

09:00-09:05: Welcome address – Amri Wandel and Tzachi Pilpel

Session 1: Biology **Chair: Tzachi Pilpel**

09:05-09:35 | From so simple a beginning - how did the first proteins evolve – Dan Tawfik (WIS)

09:35-09:45 | The tree reconstruction game: phylogenetic reconstruction using reinforcement learning – Dana Azouri, Itay Mayrose (TAU)

09:45-10:05 | Origin of life: peptide bonds formed by protoribosome constructs links the RNA world to RNA/protein lives – Tanaya Bose, Ada Yonath, (WIS)

10:05-10:15 | Nematodes as a platform for understanding fundamental aspects of animal life in extreme environments on earth and in space – Amir Sapir (HaifaU)

10:15-10:25 | Emergence of translation via autocatalytic sets – a minimal model - Itay Fayerverker, Tal Mor (Technion)

10:25-10:55 | Beyond the genome – Oded Rechavi (TAU)

Break 10:55-11:05

Session 2: Biogeochemistry **Chair: Doron Lancet**

11:05-11:40 | Describing the early Abiome: a molecular inventory in meteorites - Philippe Schmitt-Kopplin (Helmholtz Zentrum München, Germany) **Keynote**

11:40-11:50 | Insights into formation and preservation of biosignatures from the study of Dead-Sea stromatolites – Nuphar Gedulter (HUJI)

11:50-12:00 | When structure outlasts its substance: Platonist idealism and physical invariants highlighting the physical uniqueness of life - Avshalom Elizur (ChapmanU, US / Iyar) and Tzachi Pilpel (WIS)

12:00-12:20 | Temporal and spatial analysis of forward and backward microbial contamination in a Mars analog mission – Yael Yair, Reut Sorek-Abramovich (TAU)

12:20-12:30 | A metabolic-isotopic model of biological methane production – Jonathan Gropp, Itay Halevy (WIS)

12:30-12:50 | DNA liquid crystal coacervates and other phase-separated systems as primitive compartments - Tony Jia (BMSIS / ELSI, Japan)

Break 12:50-13:15

Session 3: Chemistry **Chair: Gonen Ashkenasy**

13:15-13:50 | Programming of prebiotic self-assembly and replication networks with minimal nucleobase sequences – Andres de la Escosura (Universidad Autónoma de Madrid, Spain) **Keynote**
13:50-14:10 | Thiolate-based autocatalytic reaction networks – Sergei Semenov (WIS)
14:10-14:20 | A computational simulation of a reaction networks involved in life essential reactions - Siddhant Sharma, H. James Cleaves (BMSIS / ELSI, Japan)
14:20-14:40 | Replication driven peptide-based systems far from equilibrium - Dharm Dev, Gonen Ashkenasy (BGU)
14:40-14:50 | Micellar self-reproduction through dynamic compositional attractors: life is probable!– Amit Kahana, Doron Lancet (WIS)
14:50-15:15 | Compositional identity and robustness of compartmentalized self-reproducing catalytic RNAs - Sandeep Ameta (Tata Institute, India)
15:15-15:35 | Prebiotic RNA assembly: chemistry, catalysis, and compartmentalization - Saurja DasGupta, Jack Szostak (Harvard, US)

Coffee break 15:35-15:45

Session 4: Astrobiology **Chair: Amri Wandel**

15:45-16:15 | The search for signs of life beyond earth by way of atmospheric biosignature gases – Sara Seager (MIT)
16:15-16:40 | An extended Habitable Zone around Red Dwarfs - Amri Wandel (HUJI)
16:40-16:50 | Water retention in icy bodies throughout the life of the host star: implications for habitability around white dwarfs - Uri Malamud (TAU / Technion)
16:50-17:00 | On the border between Science Fiction and Science in Astrobiology - Joseph Gale (HUJI)
17:00-17:20 | Chirality indicators for extraterrestrial life – David Avnir (HUJI)
17:20-17:30 | Overcoming stellar activity in detecting earth-analogs - Avraham Binnenfeld, Shay Zucker (TAU)
17:30-18:05 | Looking for Intelligence in the Cosmos - Seth Shostak (Center for SETI Research, US) **Keynote**