



Minerva  
Foundation

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

38<sup>th</sup> annual meeting, Thursday May 22, 2025, 9:00 AM

Room 015, Chemistry Building (43), Ben-Gurion University of the Negev

08:45-09:15 Refreshments & Gathering

9:15-9:30 Gonen Ashkenasy (BGU) *Opening session*

## *Session 1 – Early Evolution towards Molecular Biology (Gonen Ashkenasy)*

- 9:30-9:50 Nir Ben Tal (TAU) From Binding to Catalysis: Emergence of a Rudimentary Enzyme Conferring Intrinsic Antibiotic Resistance
- 9:50-10:10 Rachel Kolodny (UOH) An AI-based Holistic View of Protein Space
- 10:10-10:30 Natalie Elia (BGU) ESCRTing Eukaryogenesis: Membrane Remodeling at the Prokaryotic-Eukaryotic Junction
- 10:30-11:00 Christian Mayer (U. Duisburg-Essen) **Keynote (zoom):** The Game of Order and Complexity: Spontaneous Formation of Protocells?
- 11:00-11:30 *Coffee break*

## *Session 2 – Prebiotic Chemistry and Systems Chemistry (Omer Markovitch)*

- 11:30-12:00 Ehud Gazit (TAU) **Keynote:** Ultrashort peptides and prebiotic "metabolites" at the origin of life
- 12:00-12:20 Ronit Bitton (BGU) Macroscopic sacs and membranes of hierarchically assembled bio-polymers and PFX peptides
- 12:20-12:40 Yaron Paz (Technion) Cerium Phosphate and the origin of life: from utilizing formamide to form nucleosides and nucleotides to enantioselective adsorption of amino acids
- 12:40-13:00 Dhanalakshmi Vadivel (U. Pavia) Advancing the Understanding of the Butlerov Reaction through First-Principles Chemical Reaction Network Generation
- 13:00-14:15 *Lunch + Poster session*

## *Session 3 – Astrobiology, Astrophysics and Astrochemistry (Nathaniel Wagner)*

- 14:15-14:45 Dirk Schulze-Makuch (TU Berlin) **Keynote (zoom):** Extending the Concepts of Habitability and the Habitable Zone beyond Surface Liquid Water
- 14:45-15:05 Amri Wandel (HUJI) Prebiotic Chemistry in the Solar System Suggested by the OSIRIS-REx Sample Return from Asteroid Bennu and the Mars Rovers
- 15:05-15:20 Shira Fraenkel (Ariel U.) Super-flares of the Young M-dwarf G 227-22 and Prebiotic Chemistry
- 15:20-15:35 Matan Sade (BIU) Gamma-ray bursts: extinction and survivability
- 15:35-16:00 *Coffee break*

## *Session 4 – Early Chemical Evolution (Moran Frenkel-Pinter)*

- 16:00-16:20 Doron Lancet (WIS) Homochirality is a Result of Protocellular Chemical Dynamics
- 16:20-16:35 Eliav Marland (HUJI) Robust synthesis of prebiotic precursors in drying reactions of amino acids and keto acids
- 16:35-16:55 Meital Rechtes (HUJI) Catalysis by Simple Hydroxybenzenes: Implications for Prebiotic Chemistry and Enzyme Evolution
- 16:55-17:15 Nathaniel Wagner (BGU) Using  $\beta$ -Sheet Peptides to Model Emergent Properties of Life
- 17:15 *Concluding remarks*