



# The 31<sup>th</sup> ISFN Annual Meeting

**12-14 January, 2025**  
 Dan Hotel | Queen Of Sheba Hotel, Eilat



## Sunday, January 12th 2025

**11:00-13:00** Welcome, Check in

13:00-14:00 Lunch

### 14:00-15:15 Opening, Plenary Lecture 1

| 15:30-17:30 | A1  | A2   | A3  | A4  | A5  | A6  |
|-------------|---|--|---|---|---|---|
|             | <b>Orit Shefi</b>   | <b>Chaya Kalcheim</b>  | <b>Illana Gozes, Haitham Amal</b>   | <b>Rita Schmidt, Edna Furman-Haran</b>  | <b>Ofer Yizhar</b>  | <b>Arseny Finkelstein, Alon Rubin</b>   |
|             | <b>Neuromechanics and Neuroengineering</b>  | <b>Sensory systems: from development to function</b>   | <b>Psychiatric disorders: from molecular mechanisms to drug targets</b>   | <b>Functional differences between individuals - what can we learn from long and short term signal variations in the human brain</b> | <b>Beyond "adult male mice": circuits and behavior throughout the lifespan</b>  | <b>Using large cellular populations to reveal the neuronal code</b>   |
|             | <b>Session Speakers -</b><br>Vittoria Raffa, Shahar Alon, Matan Mussel, Adir Yarmus   | <b>Session Speakers -</b><br>Chaya Kalcheim, Adi Salzberg, Alex Binshtok, Ilan Lampl, Galit Shohat-Ophir | <b>Session Speakers -</b><br>Hermona Soreq, Illana Gozes, Hanokh Khaphzan, Shashank Ojha                                | <b>Session Speakers -</b><br>Aviv Mezer, Hadar Kolb, Tal Geffen, Rita Schmidt, Ido Tavor, Gerry Leisman, Daniel Reznik              | <b>Session Speakers -</b><br>Dana Rubi Levy, Maithe Arruda-Carvalho, Daniel Zelmanoff, Shay Stern, Ofer Yizhar, Benne Praegel, Anat Kahan | <b>Session Speakers -</b><br>Yael Bitterman, Noga Mudrik, Lilach Avitan, Alon Rubin, Arseny Finkelstein, Odeya Marmor |
|             | <b>Vittoria Raffa</b><br>Axon growth in response to pico-newton mechanical force: from molecular mechanisms to applications | <b>Chaya Kalcheim</b><br>Regulation of dynamic cell fate transitions during spinal cord development      | <b>Hermona Soreq</b><br>Which processes control novel cholinergic-targeting micrnas integrated into the primate genome? | <b>Aviv Mezer</b><br>Substantia nigra and putamen asymmetries explain motor dysfunction in Parkinson's disease                      | <b>Dana Rubi Levy</b><br>Tracing life's arc through behavior  | <b>Yael Bitterman</b><br>The distributed code of goal directed behavior   |

| 15:30-17:30 | A1   | A2  | A3   | A4   | A5   | A6   |
|-------------|--|---|--|--|--|--|
|             | <p><b>Shahar Alon</b><br/>Super-Resolved Interrogation of Molecules within Thick Brain Tissues Using Expansion Sequencing</p> <p><b>Matan Mussel</b><br/>On spikes and sound in lipid membranes</p> <p><b>Adir Yarmus</b><br/>Mechanical Dynamics of Neurons Probed With Atomic Force Microscopy</p> | <p><b>Adi Salzberg</b><br/>Mechanical forces in proprioceptor development and function</p> <p><b>Alex Binshtok</b><br/>Molecular and structural plasticity of nociceptive peripheral terminals underlying pathological pain</p> <p><b>Ilan Lampl</b><br/>Isolated correlates of somatosensory perception in the mouse cortex</p> <p><b>Galit Shohat-Ophir</b><br/>A highly conserved A-to-I RNA editing event within the glutamate-gated chloride channel GluCl<math>\alpha</math> is necessary for olfactory-based behaviors in Drosophila</p> | <p><b>Illana Gozes</b><br/>Adnp/nap (davunetide) protection in brain diseases is sex-dependent</p> <p><b>Hanokh Khaphzan</b><br/>The role of mitochondrial dysfunction in the early brain development of angelman syndrome</p> <p><b>Shashank Ojha</b><br/>A Crosstalk between nitric oxide and mTOR signaling pathway in autism spectrum disorder (ASD)</p> | <p><b>Hadar Kolb</b><br/>What can we learn from long and short-term signal variations in magnetic resonance imaging of patient</p> <p><b>Tal Geffen</b><br/>Functional connectivity gradients and thought-patterns in schizophrenia</p> <p><b>Rita Schmidt</b><br/>Increasing sensitivity in fMRI to study individual differences - advantages of high field human MRI</p> <p><b>Ido Tavor</b><br/>Relating Activity and Connectivity in the Learning Brain</p> <p><b>Gerry Leisman</b><br/>Living the inverted "U": Connecting the ups and downs from fetus to grave in movement and cognition</p> <p><b>Daniel Reznik</b><br/>Dissociating Distinct Cortical Networks Associated with Subregions of the Human Medial Temporal Lobe</p> | <p><b>Maithe Arruda-Carvalho</b><br/>Maturation of Prefrontal Cortex Pathways Modulating Emotional Learning and Stress Sensitivity</p> <p><b>Daniel Zelmanoff</b><br/>Oxytocin signaling regulates maternally directed behavior during early life</p> <p><b>Shay Stern</b><br/>The dynamic structure of behavioral individuality across developmental timescales</p> <p><b>Benne Praegel</b><br/>Behavioral and neuronal signatures of adolescence in the mouse auditory cortex</p> <p><b>Anat Kahan</b><br/>The afternoon role of the circadian VIP neurons in regulating the mammalian estrous cycle</p> | <p><b>Noga Mudrik</b><br/>Decomposed linear dynamical systems (dlDs) for studying neural dynamics within &amp; between brain areas</p> <p><b>Lilach Avitan</b><br/>Cracking the social code using whole-brain recording of the larval zebrafish</p> <p><b>Alon Rubin</b><br/>Internal structure of neuronal codes for space in hippocampus and cortex</p> <p><b>Arseny Finkelstein</b><br/>Multi-regional and local mechanisms of cortical communication during goal-directed behavior</p> <p><b>Odeya Marmor</b><br/>Brain wide network within and between naturally socializing mice</p> |

17:30-18:00 *Coffee Brake*

18:00-19:00 **Plenary Lecture 2**

19:00-20:30 *Dinner*

20:30-22:30 Beer and **Poster Session A** - All presenters stand by their posters

# Monday, January 13th, 2025

08:30–10:3

| B1   | B2   | B3   | B4   | B5   | B6  |
|--|--|--|--|--|---|
| <b>Tal Laviv</b>   | <b>Ben Engelhard</b>   | <b>Benedetta Heimler</b>   | <b>Oded Rechavi</b>  | <b>Abigail Livny-Ezer</b>  | <b>Dan Frenkel</b>  |
| <b>Molecular mechanisms of synaptic plasticity in the developing and adult brain</b>   | <b>Circuit mechanisms of motor learning and control in animals and humans</b>  | <b>Cognitive-motor-affective interactions during naturalistic behaviors in virtual reality</b>   | <b>“Cogito, ergo sum” – how perception shapes our physiology</b>   | <b>The use of Artificial Intelligence (AI) in medical neuroimaging, will it change practice?</b>   | <b>Impairment in metabolic pathways in neurodegenerative disease</b>  |
| <b>Session Speakers –</b><br>Alberto Cruz-Martin ,<br>Satoshi Kida, Shira Knafo,<br>Ivo Spiegel, Sharbel Eid,<br>Leore Heim, Maya Shelly | <b>Session Speakers –</b><br>Hadas Benisty, Roy Mukamel,<br>Raffaella Tonini, Ariel Tankus   | <b>Session Speakers –</b><br>Michal Ramot, Rony<br>Hirschhorn, Ramit Ravona,<br>Prof. Plotnik, Benedetta<br>Heimler                    | <b>Session Speakers –</b><br>Shamgar Ben-Eliyahu,<br>Noam Sobel,<br>Lior Rozenkrants,<br>Lior Laufer, Elham Taha | <b>Session Speakers –</b><br>Abigail Livny-Ezer, Dr. Yaara<br>Erez, Firas Mawase,<br>Maya Kadushin, Tzipi<br>Horowitz-kraus, Sarah Stern         | <b>Session Speakers –</b><br>Francisco J.Quintana, Jens<br>Pahnke, Ronit Pinkas-<br>Kramarski, Dan Frenkel,<br>Hagit Eldgar Finkelman,<br>Sapir Golan Shekhtman |
| <b>Alberto Cruz-Martin</b><br>A non-canonical mechanism<br>of complement 4-driven<br>cortical synaptic loss                              | <b>Hadas Benisty</b><br>M1 reorganization of layer<br>2-3 network dynamics<br>underlying motor learning  | <b>Michal Ramot</b><br>Harnessing the full power of<br>naturalistic paradigms for<br>the study of human behavior                       | <b>Shamgar Ben-Eliyahu</b>   | <b>Abigail Livny-Ezer</b><br>Diagnosis, outcome<br>prediction and precision<br>medicine in brain disorders<br>using connectomics and ai          | <b>Francisco J.Quintana</b><br>Regulation of the immune<br>response in the CNS by<br>astrocytes   |
| <b>Satoshi Kida</b><br>Roles of the hippocampus in<br>fear memory reconsolidation<br>and extinction                                      | <b>Roy Mukamel</b><br>Linking actions to their<br>sensory consequences in the<br>human brain   | <b>Rony Hirschhorn</b><br>Exploring Unconscious<br>Processing with Immersive<br>Virtual Reality  | <b>Noam Sobel</b>  | <b>Yaara Erez</b><br>Augmenting multi-modality<br>neuroimaging in patients<br>with brain tumors using<br>ECOG, fMRI and AI                       | <b>Jens Pahnke</b><br>Abca transporters modulate<br>essential metabolic pathways<br>and protect against<br>neurodegeneration                                    |
| <b>Shira Knafo</b><br>Exploring the Interplay of<br>Hippocampal TACR3 and<br>Systemic Testosterone in the<br>Regulation of Anxiety       | <b>Raffaella Tonini</b><br>Subregion specificity of<br>serotonin signal at dorsal<br>striatal circuits shapes<br>behavioral switching in<br>response to reward | <b>Ramit Ravona</b><br>A new biomarker for apathy<br>and depression in cognitive<br>impairment based on<br>physiological reactivity    | <b>Liron Rozenkrantz</b><br>How beliefs shape reality:<br>from information processing<br>to physical health      | <b>Firas Mawase</b><br>Leveraging Artificial<br>Intelligence for Advanced<br>Neural Prosthetics:<br>Enhanced Detection of<br>Dexterous           | <b>Ronit Pinkas-Kramarski</b><br>Impaired autophagy in apoE<br>expressing cells.  |
| <b>Ivo Spiegel</b><br>The genomic basis of<br>behavioral state-dependent<br>modulation of sensory<br>processing and neural circuit       | <b>Ariel Tankus</b><br>Speech features neural<br>encoding in the thalamus<br>of parkinson’s disease and<br>essential tremor patients                           | <b>Meir Plotnik</b><br>More than meets the eyes –<br>gait modulations due to<br>gravity  | <b>Lior Laufer</b><br>Organization of temporal<br>patterns of behavior across a<br>full developmental trajectory | <b>Maya Kadushin</b><br>(from Ido Tavor’s lab)<br>Predicting cognitive abilities<br>from brain connectivity using<br>artificial intelligence     | <b>Dan Frenkel</b><br>The link between metabolic<br>changes in gila cells to<br>the development of<br>neurodegenerative diseases                                |
| <b>Sharbel Eid</b><br>Deciphering the role of cell-<br>specific MeCP2 dynamics<br>in neuronal function and<br>dysfunction                |  | <b>Benedetta Heimler</b><br>Evaluating cognitive-motor<br>interactions in Parkinson’s<br>disease using a novel VR-<br>based assessment | <b>Elham Taha</b><br>Slow maturation of<br>olfactory circuits<br>underlying innate odor<br>preference            | <b>Tzipi Horowitz-kraus</b><br>Does AI provide new<br>information or validate existing<br>findings? Current and future<br>directions in dyslexia | <b>Hagit Eldgar Finkelman</b><br>Inhibition of gsk-3 alpha as<br>a protective strategy against<br>neurotoxicity and oxidative<br>stress                         |

| 08:30–10:3 | B1   | B2 | B3 | B4 | B5 | B6   |
|------------|--|----|----|----|----|--|
|            | <p><b>Leore Heim</b><br/>Channeling Mitochondrial Calcium for Homeostatic Regulation of Hippocampal Activity</p> <p><b>Maya Shelly</b><br/>The role of non-vesicular lipid transport at ER-PM contact sites in phosphoinositide signaling in dendrite development in early circuit establishment</p> |    |    |    |    | <p><b>Sapir Golan Shekhtman</b><br/>Regional Fat is Related to Lower Cognitive Functioning and Brain Volumes in High AD-Risk Males</p> |

10:30–11:00 Coffee Break

**10:45–13:45 Eilat student's panel at queen of Sheba hotel**

| 11:00–13:00 | C1   | C2   | C3  | C4  | C5  | C6                            |
|-------------|--|--|---|---|---|-------------------------------|
|             | <b>Tawfeeq Shekh-Ahmad</b>   | <b>Boaz Barak</b>  | <b>Tal Burstyn-Cohen</b>  | <b>Bruce Hope</b>   | <b>Gali Umschweif</b>   | <b>Eilat Students session</b> |
|             | <b>Recent Advances in Gene Therapy for Neurological Disorders</b>  | <b>Myelin and oligodendrocytes dysfunction in neuropathology</b>   | <b>Cellular interactions guiding neural development and function developing nervous system</b>  | <b>Molecular, cellular, and circuit mechanisms of drug-related learning</b>   | <b>cellular and molecular regulation of stress-induced behavior</b>   |                               |
|             | <p><b>Session Speakers -</b><br/>Tawfeeq Shekh-Ahmad, Moran Rubinstein, Rami Aqeilan, Daniel J. Steinberg</p> <p><b>Tawfeeq Shekh-Ahmad</b><br/>CNS-targeted Antioxidant Gene Therapy for Treating Epilepsy</p> <p><b>Moran Rubinstein</b><br/>Dravet syndrome mouse models for novel gene therapy development</p> <p><b>Rami Aqeilan</b><br/>Neuron-Specific AAV-Mediated WWOX Gene Therapy Rescues Mortality and Seizure Phenotypes in WOREE Syndrome Models</p> | <p><b>Session Speakers -</b><br/>Inbar Fischer, Tal Iram, Elior Peles, Michal Ben-Shachar, Boaz Barak</p> <p><b>Inbar Fischer</b><br/>Shank3 Mutation Impairs Glutamate Signaling and Myelination in ASD Mouse Model and Human iPSC-Derived OPCs</p> <p><b>Tal Iram</b><br/>Young CSF restores oligodendrogenesis and memory in aged mice via Fgf17</p> <p><b>Elior Peles</b><br/>Differential subcellular distribution of SynCAM/Cadm proteins in neurons guides myelin targeting</p> | <p><b>Session Speakers -</b><br/>David Shprinzak, Orit Shefi, Gil Levkowitz, Roberta Fresia, Dalit Sela-Donenfeld,</p> <p><b>Shahar Kasirer</b><br/>Mechanics of hair cell regeneration in the inner ear</p> <p><b>Orit Shefi</b><br/>Neuronal interactions with nano-based platforms for directing neuronal growth engineering</p> <p><b>Gil Levkowitz</b><br/>Neural plate progenitors give rise to both anterior and posterior pituitary cells</p> | <p><b>Session Speakers -</b><br/>Itay Shalom, Bruce Hope, Rami Yaka, Segev Barak, Yoni Kupchik</p> <p><b>Itay Shalom</b><br/>Probing the circuit underlying cocaine-induced stereotypies with a novel behavior analysis platform</p> <p><b>Bruce Hope</b><br/>Cell types and unique transcriptomic alterations of neuronal ensembles activated by cocaine-induced</p> <p><b>Rami Yaka</b><br/>Role of the translational machinery in cocaine-induced behaviours</p> | <p><b>Session Speakers -</b><br/>Gali Umschweif-Nevo, Gal Richtel-Levin, Dorit Farfara-Cohen, Alon Chen, Sarah Stern, Alaa saleh</p> <p><b>Gali Umschweif-Nevo</b><br/>Neurensin-2: a novel cell-type-specific stress-responsive protein</p> <p><b>Gal Richter Levin</b><br/>The dorsal dentate gyrus - a surprising player in stress vulnerability and resilience</p> <p><b>Dorit Farfara-Cohen</b><br/>Serotonin regulates immune cell infiltration to the brain compartment via the pineal gland</p> |                               |

| 11:00–13:00 | C1  | C2   | C3  | C4   | C5  | C6 |
|-------------|---|--|---|--|---|----|
|             | <p><b>Daniel J. Steinberg</b><br/>Epilepsy in a dish: Using brain organoids for studying WWOX-related neurological disorders and gene therapy</p> | <p><b>Michal Ben-Shachar</b><br/>Long-range connections in the human brain and their contribution to cognition</p> | <p><b>Roberta Fresia</b><br/>Protein s (pros1) regulates microglial development and function</p>  | <p><b>Segev Barak</b><br/>Long-term alcohol consumption enhances accumbal myelination and impairs neural connectivity</p>  | <p><b>Alon Chen</b><br/><b>Sarah Stern</b></p>  |    |
|             |   |  | <p><b>Dalit Sela-Donenfeld</b><br/>Hindbrain boundaries–niches of neural progenitor/ stem cells regulated by their extracellular matrix</p> | <p><b>Yoni Kupchik</b><br/>Synaptic plasticity alterations in ventral pallidal circuitry after abstinence from cocaine</p> | <p><b>Alaa saleh</b><br/>Biophysical mechanism underlying epigenetically inherited stressful behavior</p> |    |

13:00–14:00 Lunch

14:00–15:00 Plenary Lecture 3

| 15:30–17:30 | D1  | D2   | D3  | D4  | D5   | D6   |
|-------------|---|--|---|---|--|--|
|             | <p><b>Yuval Nir</b></p>   | <p><b>Haim Sompolinsky</b></p>   | <p><b>Ramon Birnbaum</b></p>  | <p><b>Pablo Blinder</b></p>   | <p><b>Omer Revah</b></p>   | <p><b>Ofi</b></p>                            |
|             | <p><b>Sleep: unconscious restoration, from molecules to behavior</b></p>  | <p><b>Neuroscience of Knowledge</b></p>  | <p><b>Neuronal transcription regulation</b></p>   | <p><b>New insights into Brain Barriers development and function</b></p>   | <p><b>Human brain organoids in neurodevelopment and disease</b></p>  | <p><b>Neu</b></p>                            |
|             | <p><b>Session Speakers -</b><br/>Gali Krayden, Refaela Atsmon, Hagai Bergman, Yuval Nir, Anat Arzi</p>                        | <p><b>Session Speakers -</b><br/>Haim Sompolinsky, Edmond and Lily Safra, Galit Yovel, Ariel Goldstein, Winrich Freiwald, Mathew Diamond</p> | <p><b>Session Speakers -</b><br/>Eran Meshorer, Evan Eliot, Dan Bracha, Rawan Alatawna, Igor Ulitsky, Ramon Birnbaum</p>            | <p><b>Session Speakers -</b><br/>Karina Yaniv, Ayal Ben-Zvi, Tali Ilovitsh, Preethi Rajamannar, Nir Cafri, Meshi Zorsky</p> | <p><b>Session Speakers -</b><br/>Orly Reiner, Abed Mansour, Omer Revah, Miri Danan Gotthold, Gal Lazarus</p>           | <p><b>Session Speakers -</b><br/>Vittous</p> |
|             | <p><b>Gali Krayden</b><br/>Sleep and repair of DNA breaks across evolution</p>  | <p><b>Haim Sompolinsky, Edmond and Lily Safra</b><br/>Geometry of Neural Representations: From Vision to Language</p>                        | <p><b>Eran Meshorer</b><br/>Pluripotent stem cell models reveal altered genetic and epigenetic pathways in Huntington’s disease</p> | <p><b>Karina Yaniv</b><br/>Mechanisms underlying the establishment and functionality of the Neurovascular Unit</p>          | <p><b>Orly Reiner</b><br/>MorphoNeuroChip: Unveiling Brain Malformations’ Secrets at the Molecular Level</p>           |  |
|             | <p><b>Refaela Atsmon</b><br/>Homeostatic regulation of CA1 firing rate set points and contextual memory retrieval in mice</p> | <p><b>Galit Yovel</b><br/>Disentangling the Contributions of Vision and Language in Perception and Memory</p>                                | <p><b>Evan Eliot</b><br/>Forebrain neuronal Smc3 regulates appetite, weight, and metabolic health</p>                               | <p><b>Ayal Ben-Zvi</b><br/>Unique features of the arterial Blood-Brain Barrier</p>  | <p><b>Abed Mansour</b><br/>A novel neuroimmune human brain organoid model to study microglia in health and disease</p> |  |
|             | <p><b>Hagai Bergman</b><br/>Sleep and sedation in basal ganglia in health and Parkinson’s disease</p>                         | <p><b>Ariel Goldstein</b><br/>Deep Modeling of Cognition</p>   | <p><b>Dan Bracha</b><br/>Probing and Reprogramming Transcriptionally Active Liquid Bodies in Living Cells</p>                       | <p><b>Tali Ilovitsh</b><br/>Nanobubble-mediated BBB opening as a platform for enhanced delivery to brain capillaries</p>    | <p><b>Omer Revah</b><br/>Using stem cells to build a model of the human cortex in vivo</p>                             |  |

| 15:30-17:30 | D1  | D2  | D3   | D4   | D5   |
|-------------|---|---|--|--|--|
|             | <p><b>Yuval Nir</b><br/>Sleep and memory consolidation in health and disease</p> <p><b>Anat Arzi</b><br/>Unconsciousness Dynamics: From Sleep to Disorders of Consciousness</p> | <p><b>Winrich Freiwald</b><br/>Neuroscience of Knowledge: from Face Perception to Person</p> <p><b>Mathew Diamond</b><br/>Neuronal mechanisms underlying a single (not just the average) decision</p> | <p><b>Rawan Alatawna</b><br/>Transcription factors and their corresponding regulatory elements during neuronal differentiation</p> <p><b>Igor Ulitsky</b><br/>Regulation of neuronal chromatin environments by long noncoding RNAs</p> <p><b>Ramon Birnbaum</b><br/>Deciphering gene regulatory elements during inhibitory interneuron differentiation using deep neural</p> | <p><b>Preethi Rajamannar</b><br/>Oxytocin may regulate its own uptake via blood flow dynamics</p> <p><b>Nir Cafri</b><br/>Blood Brain Barrier Dysfunction in Drug Resistance Epilepsy: A Multi-Center Feasibility Study</p> <p><b>Meshi Zorsky</b><br/>Exosomes from neural cells enhance barrier functions in iPSC-based model of the human BBB</p> | <p><b>Miri Danan Gotthold</b><br/>Early neurodevelopment at the single-cell resolution</p> <p><b>Gal Lazarus</b><br/>Collaborating with Patient Advocacy Groups to Facilitate Drug Development for NDD</p> |

17:30-18:00 *Coffee break*

**18:00-19:00 Plenary Lecture 4**

**19:00-19:30 ISFN General Assembly Business Meeting - Regular and emeritus members only - better half an hour than zoom meeting**

19:00-20:30 *Dinner*

20:30-22:30 beers and **Poster Session B**

22:30-24:30 DJ party

# Tuesday, January 14th, 2025

08:30–10:30

| E1  | E2  | E3  | E4  | E5  | E6   |
|---|---|---|---|---|--|
| <b>Ehud Cohen</b>   | <b>Oren Shriki</b>  | <b>Dori Derdikman, Yaniv Ziv</b>  | <b>Gadi Gilam, Alexander Binshtok</b>   | <b>Hanna Keren</b>  | <b>Marc Deffains</b>   |
| <b>Cellular proteostasis mechanisms in health and disease</b>   | <b>Artificial neural networks as models of biological sensory processing</b>  | <b>Learning and Memory: From mice to humans</b>   | <b>Modulating pain from the terminal to the brain – Basic and translational insights into mechanisms of pathological pain</b> | <b>Virtual environments for the study of human behavior and perception</b>  | <b>Rethink about the role of the external globus pallidus in basal ganglia functions</b>                             |
| <b>Session Speakers –</b> Avraham Ashkenazi, Simone Engelender, Adrian Israelson, Ehud Cohen, Ronit Ilouz   | <b>Session Speakers –</b> Oren Shriki, Tal Golan, Galit Yovel, Omri Barak, Jonathan Kadmon                              | <b>Session Speakers –</b> Itzhak Fried, Dori Derdikman, Yaniv Ziv, Ayal Lavi                                      | <b>Session Speakers –</b> Avraham Yaron, Ben Title, Irit Weissman-Fogel, Gadi Gilam   | <b>Session Speakers –</b> Tom Schonberg, Elana Zion-Golumbic, Roy Salomon, Hanna Keren, Adi Lustig                      | <b>Session Speakers –</b> Thomas Boraud, Hagai Bergman, Shiran Katabi, Dana Cohen                                    |
| <b>Avraham Ashkenazi</b><br>Regulators of $\alpha$ -synuclein secretion and spread in Parkinson's disease   | <b>Oren Shriki</b><br>Sensory recurrent networks: optimal information representation, hallucinations, and synaesthesia  | <b>Itzhak Fried</b>   | <b>Avraham Yaron</b><br>The kinesin family member 2a (kif2a) gates nociception  | <b>Tom Schonberg</b><br>XR as a tool to densely study human behavior  | <b>Thomas Boraud</b><br>Contribution of the non-human primate external globus pallidus in decision-making            |
| <b>Simone Engelender</b><br>A novel decoy peptide strategy to prevent $\alpha$ -synuclein proteotoxicity in Parkinson's disease and other $\alpha$ -synucleinopathies | <b>Tal Golan</b><br>Disentangling representational geometries in neural network models of human perception              | <b>Eran Stark</b><br>Short term memory in freely moving mice  | <b>Ben Title</b><br>The Guardians of Passage: Adaptive Changes in the Output from the First Nociceptive Neural Network        | <b>Elana Zion-Golumbic</b><br>The Neural Underpinnings of Attention and Distraction in (virtual) Realistic Environments | Student of <b>Hagai Bergman</b><br>Discharge features of the non-human primate external globus pallidus during sleep |
| <b>Adrian Israelson</b><br>Targeting low levels of MIF expression as a potential therapeutic strategy for ALS   | <b>Galit Yovel</b><br>What can deep learning tell us about human face recognition?                                      | <b>Dori Derdikman</b><br>Active experience, not time, determines within day representational drift in dorsal CA1  | <b>Irit Weissman-Fogel</b><br>Reinforcement of pain modulation- a mechanism based treatment for pain relief in chronic pain   | <b>Roy Salomon</b><br>Keep it Real- Using virtual reality to understand real human behaviors                            | <b>Shiran Katabi</b><br>Dichotomous Activity and Function of the LFD and HFD neurons in the NHP GPe                  |
| <b>Ehud Cohen</b><br>A Nucleolar Mechanism Suppresses Proteostasis across the Organism by the Modulation of Multiple Signaling Pathways                               | <b>Omri Barak</b><br>Aligned and oblique dynamics in recurrent neural networks  | <b>Yaniv Ziv</b><br>Long-term dynamics of the entorhinal grid code  | <b>Gadi Gilam</b><br>The Neural Bases of Emotion Regulation of Pain in Chronic Pain   | <b>Hanna Keren</b><br>Studying mood dynamics in a rich virtual context  | <b>Dana Cohen</b><br>Multidimensional encoding in the rodent external globus pallidus                                |
| <b>Ronit Ilouz</b><br>Mutation in Protein Kinase A (PRKAR1B) gene drives pathological mechanisms of Neurodegeneration   | <b>Jonathan Kadmon</b><br>Rethinking backpropagation: training large neural networks with low-dimensional error signals | <b>Ayal Lavi</b><br>Causal role of insular cortex neuronal activity manifolds in appetitive and aversive learning |   | <b>Adi Lustig</b><br>Heart rate related measures response to visual-physical incongruent walking conditions             |  |

10:30–11:00 *Coffee Brake*

| F1   | F2   | F3  | F4   | F5  | F6   |
|--|--|---|--|---|--|
| <b>Lior Mayo</b>   | <b>Abed Mansour,<br/>Zeev Melamed</b>  | <b>Yoav Livneh</b>  | <b>Gilad Silberberg,<br/>Ilan Lampl</b>  | <b>Gaddi Blumrosen</b>  | <b>Michal Rivlin</b>   |
| <b>Here and Back Again,<br/>A Neuroimmunology's Tale</b>   | <b>Stem-cells based<br/>technologies to study<br/>brain disorders</b>  | <b>Brain-body interactions in<br/>the insular cortex</b>  | <b>Structure and function<br/>of interhemispheric<br/>communication</b>  | <b>Monitoring and<br/>Diagnostics of<br/>neurological disease<br/>and disorders at home<br/>environment settings</b>  | <b>Coding principles in<br/>sensory and motor<br/>systems: breaking the<br/>rules</b>  |
| <b>Session Speakers –</b><br>Lior Mayo, Michal Schwartz,<br>Eran Blacher, Alon<br>Monsenero, Or Shemesh,<br>Itay Zalayat     | <b>Session Speakers –</b><br>Shani Stern, Zeev Melamed,<br>Gad Vatine, Eran Hornstein,<br>Mahmood Ali, Ahd hamdan  | <b>Session Speakers –</b><br>Sarah Stern, Yael Prilutski,<br>Yoav Livneh, Stav Shtiglitz,<br>Kolatt Chandran<br>Sailendrakumar, Kobi<br>Rosenblum, Asya Rolls | <b>Session Speakers –</b><br>Katayun Cohen-Kashi,<br>Noa Rivlin, Yael Oran,<br>Netanel Ofer                                | <b>Session Speakers –</b><br>Hadas Lewy, Jason Friedman,<br>Inbal Maidan,<br>Gaddi Blumrosen, Hila Gvirtz,<br>Joachim Beharn                                | <b>Session Speakers –</b><br>Moshe Parnas, Rony Azouz,<br>Mati Joshua, Inbal Shainer,<br>Elyashiv Zangen,<br>David Deutsch     |
| <b>Lior Mayo</b>   | <b>Shani Stern</b><br>Seeking Convergence and<br>Divergence between Autism<br>and Schizophrenia using<br>genomic tools and iPSC<br>patient derived neurons | <b>Sarah Stern</b><br>Insular cortex circuits<br>mediating dlexible feeding<br>behaviors  | <b>Katayun Cohen-Kashi</b><br>Behavioral states control<br>binocular vision through<br>input-specific mechanisms           | <b>Hadas Lewy</b><br>Research and Development<br>of digital parameters for<br>functional and cognitive<br>assessment at home                                | <b>Moshe Parnas</b><br>Battle of the memories –<br>how the brain prevents the<br>co-formation of conflicting<br>memories.      |
| <b>Michal Schwartz</b><br>Why does the immune<br>system fall short in dementia<br>and could be restored by<br>immunotherapy? | <b>Zeev Melamed</b><br>Rescue of impaired axonal<br>regeneration in ipsc-derived<br>motor neurons affected by<br>tdp-43 pathology                          | <b>Yael Prilutski</b><br>Interoceptive predictions<br>during hunger and thirst in<br>the insular cortex   | <b>Noa Rivlin</b><br>Behavioral Control by<br>Claustro-Cortical Circuits   | <b>Jason Friedman</b><br>Evaluating changes in<br>dexterity in people with<br>Parkinson's disease at home<br>using an electric piano                        | <b>Rony Azouz</b><br>Reliability and Stability of<br>Tactile Perception in Rodents   |
| <b>Eran Blacher</b><br>Mapping the immune<br>response in the aging gut<br>at the setting of stroke                           | <b>Gad Vatine</b><br>Modeling Neurological<br>Disorders at the Blood Brain<br>barrier (BBB)  | <b>Yoav Livneh</b><br>Brain-body interactions:<br>Sensations and predictions<br>in the insular cortex   | <b>Yael Oran</b><br>Reduction of corpus callosum<br>activity during whisking<br>leads to interhemispheric<br>decorrelation | <b>Inbal Maidan</b><br>Parkinson disease severity<br>evaluation from home based<br>real-life facial video   | <b>Mati Joshua</b><br>High-Dimensional Encoding<br>of Movement by Single<br>Neurons in Basal Ganglia<br>Output                 |
| <b>Alon Monsonego</b><br>A neuro-endocrine-<br>immune perspective to<br>age-related<br>neurodegenerative<br>disorders        | <b>Eran Hornstein</b><br>AI-driven deep organellar<br>phenotyping of human iPSC-<br>derived neurons  | <b>Stav Shtiglitz</b><br>Cortical interoceptive<br>predictions for neural<br>control of nutritional choice  | <b>Netanel Ofer</b><br>Branch-specific spike<br>failures at distal axons in<br>mouse cortex in vivo                        | <b>Gaddi Blumrosen</b><br>Behavioral Based<br>Neurological condition<br>assessment: roadmap,<br>and feasibility with ADHD<br>diagnosis from real-life video | <b>Inbal Shainer</b><br>Positional information<br>drives distinct traits in<br>transcriptomically identified<br>neuronal types |
| <b>Or Shemesh</b><br>Herpes Simplex Virus-1<br>Proteins Drive Alzheimer's<br>disease Pathologies in<br>Humans                | <b>Mahmood Ali</b><br>HIKESHI-related Hypo-<br>myelinating Leukodystrophy:<br>a Brain-On-Chip model for<br>pre-clinical testing of gene<br>therapy         | <b>Kolatt Chandran<br/>Sailendrakumar</b><br>Representation of Taste<br>Valence Encoding in Anterior<br>Insula (aIC) Projection<br>Neurons                    |  | <b>Hila Gvirtz</b><br>Automatic Alexithymia<br>recognition from remote<br>interviews with LLM models  | <b>Elyashiv Zangen</b><br>Light-Responsive Neurons in<br>the Medial Prefrontal Cortex<br>Encode Light Intensity                |



11:00-13:00

F1

**Itay Zalayat**

Dissecting the effects of distinct VTA projections on peripheral immunity

F2

**Ahd hamdan**

Immunocompetent Human Midbrain Organoids to Study Neuroinflammation in Parkinson's Disease

F3

**Kobi Rosenblum**

Intra-insula Circuit Mediates the Association between External and Internal Sensory Information

**Asya Rolls**

Immunoception: immune representation in the brain

F4

F5

**Joachim Behar**

Sleep physiological biomarkers derived from continuous seamless monitoring sleep stages abnormalities at home

F6

**David Deutsch**

Mixed connectivity and local computations across a whole adult Drosophila brain

13:00-14:00 *Lunch*

14:00-15:00 **Announcement of Prizes: Best mentor Prize, Poster Competition Prizes**

*END OF ISFN 2025*