



RESEARCH WORKSHOP OF THE ISRAEL SCIENCE FOUNDATION
ISF workshop- Ein Gedi- June 12-14 2011
BGU June 15 2011
The Seventh Annual workshop at BGU June 16 2011

Preliminary Program, last updated on May 20, 2011*

*Subject to Changes

Sunday June, 12, ISF workshop, Ein Gedi

9:30 -10:30 Registration - Coffee

10:30-13:00 Opening session – Simulated Movement and Moving

Chairperson: Gerry Loeb (University of Southern California, Los Angeles)

10:30–11:00 **Simulated Behavior and Behavior** Amir Karniel (BGU)
Reaction Conducted by Opher Donchin (BGU)

11:00-11:30 **Simulated Physiology and Physiology** Opher Donchin (BGU)
Reaction Conducted by Amir Karniel (BGU)

11:30-12:00 **Break**

12:00-12:30 **Panel – Simulated Movement and Moving What is the Difference?**
Tamar Flash (Weizmann), Neville Hogan (MIT), Gerry Loeb (USC)

12:30-13:00 **Movement Feldenkrais Lesson I**
Dr. Eilat Almagor (The Rubin Academy of Music and Dance, Jerusalem)

13:20 **Tour to Matzada, Ein Bokek and the Dead Sea**
Guide: Ittai Herrmann

Opening Dinner



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Monday June, 13, ISF workshop, Ein Gedi

09:30-13:00 Session Spinal Cord

Chairperson: Dagmar Sternad (Northeastern University, Boston)

9:30-10:20 **Spinal Circuitry Makes Motor Control Easy to do But Hard to Understand**

Gerry Loeb (University of Southern California, Los Angeles)

10:20-11:10 **Temporal Properties of Motor Actions**

Yifat Prut (Hebrew University, Jerusalem)

11:10-11:40 **Break**

11:40-12:30 **Reconfiguration of motoneuron input-output properties for different motor tasks**

Charles J Heckman (Northwestern University, Chicago)

12:30-13:00 **Movement Feldenkrais Lesson II**

Eilat Almagor (The Rubin Academy of Music and Dance, Jerusalem)

Lunch break

15:00-19:30 Session: Motor Planning, Learning and Control

Chairperson: Amir Karniel (BGU)

15:00-15:50 **Stability and Variability in Learning an Interactive Task**

Dagmar Sternad (Northeastern University, Boston)

15:50-16:40 **On Motion Planning And Coordination at The Intrinsic Joint and Body Levels: Computational Models and Brain Mapping Studies**

Tamar Flash (Weizmann Institute, Rehovot)

16:40-17:10 **Break**

17:10-18:00 **Movement Planning in the Frontoparietal Reach Network**

Alexander Gail (Deutsches Primatenzentrum, Göttingen)

18:00- 18:40 Panel (Karniel and all speakers of the day)

Dinner time



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Tuesday June, 14, ISF workshop, Ein Gedi

09:30-13:00 Session: Analysis and Synthesis of Motor Behavior in Human Machine Interfaces and Teleoperation Systems

Chairperson: Miriam Reiner (Technion, Haifa)

9:30-10:20 **Perception, Action and Interactions between Time and Space Representations**
Amir Karniel (BGU)

10:20-11:10 **Towards Understanding and Modeling Haptic Interaction in Human-Human and Human-Robot Dyads**
Angelika Peer (Technische Universität München, Munich)

11:10 -11:40 **Break**

11:40 -12:30 **Application of the Rubber Hand Illusion to Motor Learning in a Hapto-Visual Virtual Environment**
Miriam Reiner (Technion, Haifa)

12:30 -13:00 **Movement Feldenkrais Lesson III**
Eilat Almagor (The Rubin Academy of Music and Dance, Jerusalem)

Lunch Break

15:00- 16:40 Session: Movements and Costs- the Cortico-Basal Ganglia Loops

Chairperson: Opher Donchin (BGU)

15:00 - 15:50 **Physiological Investigations into Human Probabilistic and Reward Based Motor Learning**
John Rothwell (University College London, London)

15:50 - 16:40 **Gain-cost Optimization Rather than Reward Maximization in the Basal Ganglia Network**
Hagai Bergman (Hebrew University, Jerusalem)

16:40-17:10 **Break**

20:00 **Full Moon Havarim Stream Hike**
Guide: Eitan Krovovski

24:00 Check in Golden Tulip Beer-Sheva



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Wednesday June 15, ISF workshop, Beer-Sheva

Free morning Free Lunch time (on your own).

- 13:30-14:00 **Poster Placement and Coffee**
- 14:00-14:10 **Opening of the ISF-BGU afternoon session**
Amir Karniel
- 14:10-15:00 **Understanding Haptics by Evolving Mechatronic Systems**
Gerry Loeb (University Southern California, Los Angeles)
- 15:00-15:20 **Break (Posters)**
- 15:20-16:10 **Frames in locomotion, kinematics and planing**
Daniel Bennequin (University Paris 7, and LPPA College-de-France)
- 16:10-17:00 **Participation of the Motor Cortex in Feed-Forward Control of Motor Actions, Learning and Kinesthesia in Humans**
Anatol Feldman (University of Montreal, Montreal)
- 17:00 -18:00 Lab Visits (Karniel, Donchin, other labs at BGU)
- 19:00 **Dinner**



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Thursday June, 16 CMCW BGU, Beer-Sheva

8:20-8:50 **Registration, Poster Placement and Coffee**
8:50-9:00 **Greetings** – Dr. Amir Karniel, Head of the Organizing Committee, BGU
9:00-9:10 **Opening remarks** – Prof. Rivka Carmi, President, BGU

9:10-10:20 Session title: Planning movements

Chairperson: John Rothwell (University College London, London)

9:10-9:40 **Coordinate Frames and Metric Structures in Motor Control Models**
Neville Hogan (Massachusetts Institute of Technology, Cambridge)

9:40-10:10 **Optimal Selection of Arm Movements During Evidence Accumulation**
Jason Friedman (Macquarie University, Sydney)

10:10-10:20 **Discussion**

10:20-11:00 **Poster Session and Coffee Break**

11:00-12:30 Session: Rehabilitation

Chairperson: Anatol Feldman (University of Montreal, Montreal)

11:00-11:30 **Robotic orthoses: A perspective for the rehabilitation of upperlimb synergies at joint level**
Roby-Brami Agnès (Université Paris Descartes, Paris)

11:30-12:00 **Brain Stimulation Interventions and Their Potential**
John Rothwell (University College London, London)

12:00-12:30 **Neurocorrelates of Movements as measured with EEG**
Ulrich Hoffmann (TECNALIA, Spain)

12:30-12:40 **Discussion**

12:40-14:40 **Posters Session and Lunch**



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14:40- 16:20 Session title: From Neural representation to movement primitives

Chairperson: Dagmar Sternad (Northeastern University, Boston)

14:40-15:10 **Neural Responses to Disturbances and Novel Environments**
Miriam Zacksenhaus (Technion, Haifa)

15:10-15:40 **Compressed Sensing for Decoding Movement Direction from the Activity of Multiple Neurons in the Human Frontal Lobe**
Ariel Tankus (University of California, Los Angeles, Los Angeles)

15:40-16:10 **Learning of Movement Primitives as Basis for the Analysis and Synthesis of Emotional Body Expressions**
Martin Giese (University Clinic Tübingen, Tübingen)

16:10-16:20 **Discussion**

16:20-16:30 **The Alpha Omega, Sensegraphics and NanInstruments Best poster and Travel Awards**

16:30-17:00 **Posters Session and Coffee**

Session title: From Geometry to Physiology

Chairperson: Gerry Loeb (University of Southern California, Los Angeles)

17:00-17:30 **Riemannian geometric approach to human arm movements**
Armin Biess (Max-Planck-Institute for Dynamics and Self-Organization, Goettingen)

17:30-18:00 **The cerebellar role in motor control and in the motor hierarchy**
Opher Donchin (BGU)

18:00-18:10 **Discussion**

Sponsors:

- The Israel Science Foundation
- The President, Ben-Gurion University
- The Rector, Ben-Gurion University
- The Zlotowski Center for Neuroscience, BGU
- The Dean of the Faculty of Health Sciences, BGU
- The Dean of the Faculty of Engineering, BGU