Between Biology and Physics: Reduction, Emergence and Complexity

The Twenty-Sixth Annual International Workshop on the History and Philosophy of Science
Monday-Thursday, December 17-20, 2012
At Tel Aviv University and The Van Leer Jerusalem Institute

Monday, December 17,
at Tel Aviv University

10:00-12:00
Greetings: Leo Corry, Tel Aviv University
Mark Bedau, Reed College
How Emergence Drives Synthetic Biology, Science and Ethics
Meir Hemmo, University of Haifa and
Orly Shenker, The Hebrew University of Jerusalem
A Physical Account of the Reduction to Physics

12:00-12:30 Coffee Break

12:30-13:30
Paul Humphreys, University of Virginia
The Dynamics of Emergence

13:30-14:30 Lunch Break

14:30-16:30
Simcha Rozen, Hadassah College and
The Hebrew University of Jerusalem
The Prehistory of Emergence

Yemima Ben-Menahem, The Hebrew University of Jerusalem
Emergence: The Upwards-Downwards Metaphor and Its Value

16:30-17:00 Coffee Break

17:00-18:00
Ruth Millikan, University of Connecticut
Explanation by Reference to Proper-Functional Kinds
Tuesday, December 18, at the Van Leer Jerusalem Institute

9:30-11:30
Alex Rosenberg, Duke University
How Physics Fakes Design: Why Natural Selection Is the Only Physically Possible Route to Adaptation

Bence Nanay, University of Antwerp
The Asymmetry Between Biology and Physics

11:30-12:00 Coffee Break

12:00-13:00
Ehud Lamm, Tel Aviv University
Genomes All the Way Down

13:00-14:30 Lunch Break

14:30-16:30
Oron Shagrir, The Hebrew University of Jerusalem (joint work with William Bechtel, UC, San Diego)
Marr’s Computational Level and Delineating Phenomena

Shimon Marom, Technion – Israel Institute of Science
Interpretations of Temporal Response Fluctuations in Proteins, Neurons, Networks and Simple Behavior

16:30-17:00 Coffee Break

17:00-18:00
Erez Firt, Tel Aviv University
A Suggestion for a Non-Trivial Meaning for Teleology in Physics

Wednesday, December 19, at the Van Leer Jerusalem Institute

8:30-14:30:
Tour of the Old City of Jerusalem (Lunch in the Old City) For Participants and their families

14:30-16:30
Michael Strevens, New York University
Simplicity, Dependence and the Sciences of Complexity

Laura Franklin-Hall, New York University
The Possibility of Biology

16:30-17:00 Coffee Break

17:00-18:00
Arnon Levy, The Van Leer Jerusalem Institute
Causal Organization and the Physics/Biology Boundary

19:30-21:30 Dinner

Thursday, December 20, at the Van Leer Jerusalem Institute

9:30-11:30
Sandra Mitchell, University of Pittsburgh
Physical and Biological Laws – A Difference of Degree

Jonathan Yaari, The Hebrew University of Jerusalem
Confirmation and Complexity

11:30-12:00 Coffee Break

12:00-13:00
Dorit Aharonov, The Hebrew University of Jerusalem
Is Quantum Mechanics Falsifiable? A Computational View on the Foundations of Quantum Mechanics

13:00-14:30 Lunch Break

14:30-17:00
Gabriel Motzkin, The Van Leer Jerusalem Institute
Reduction, Causal Levels and Intentionality: Physics, Biology and History

Roundtable Discussion:
Erez Braun, Technion – Israel Institute of Science
Eva Jablonka, Tel Aviv University
Sandra Mitchell, University of Pittsburgh
Michael Strevens, New York University
Shimon Ullmann, Weizmann Institute of Science

Venues:
Tel Aviv University: Gilman Building, Hall 496, Tel. 03-6409198
The Van Leer Jerusalem Institute: 43 Jabotinsky St., Jerusalem, Tel. 02-5605222
Parking is not available at the Van Leer Jerusalem Institute. (Metered parking is available on the neighboring streets.)

Admission is free