

# 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

Wednesday, December 19,  
at the Van Leer Jerusalem Institute

Thursday, December 20,  
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 Nannay**, University of Antwerp and University of Cambridge  
**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**

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**

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:**

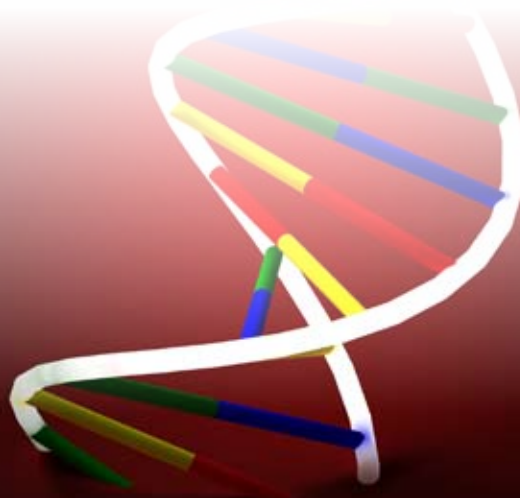
**Erez Braun**, Technion – Israel Institute of Science

**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**