Origin of Life: A Problem for Complexity Science
Sept 30, 2015, 8:30 am – 5:00 pm
Fiesta Ballroom II

Welcome: Life, Complexity and Physics
8:30 am   Paul Davies. Is Life A Cosmic Imperative?

Part 1: Addressing Origin of Life as Problems for Complexity Science
9:00 am   Paul Cassell. Conceptual advances in origins of life research.
9:30 am   Michael Lachmann. Maybe we should apply biology to physics, not the other way round?
10:00 am  Discussion on Part 1

Coffee Break (10:20 am – 10:40 am)

Part 2: Emergence of Living States from Evolution of Complexity
10:40 am  Cole Mathis. Emergence of Life As a First Order Phase Transition.
11:00 am  Eric Libby. Aggregative group formation in the transition to multicellularity.
11:50 am  Discussion on Part 2

Lunch (12:10 pm – 1:10 pm)

Part 3: Evolution of Metabolic Networks: from Organism to Community
1:10 pm   Jason Raymond. A metabolism-centric view of the origin and diversification of life: from enzyme mechanisms to metabolic networks.
1:40 pm   Harrison Smith. The Evolution of Metabolic Communities: Computational Models and Empirical Results.
2:00 pm   Discussion on Part 3

Coffee Break (2:20 pm – 2:40 pm)

Part 4: Computation and Information of Biological Systems
2:40 pm   James Crutchfield. Structural Thermodynamics of Agency.
3:10 pm   David Wolpert. The free energy needed for computation: Implications for evolution.
4:00 pm   Discussion on Part 4

Closing: Origin of Life as Possible Answers for Complexity Science
4:20 pm   Sara Walker. Towards a Mathematical Definition for the Transition from Non-Living to Living Matter.