Physics of Living Systems Student Research Network Meeting

Yale Summer 2012 July 10-13 Schedule

Tuesday, July 10, Sackler symposium on the third floor of Kroon Hall (https://business.yale.edu/map/#building:KRN)

+ student dinners with symposium speakers (you will find out which speaker you are going with when you register for the symposium

All talks Wednesday through Friday are in Bass 305

Wednesday, July 11

8:00 – 8:30 am *Breakfast outside Bass 305 + Registration + Dinner sign up + Tubing sign up / waiver form + Welcome*

8:30 – 9:45 am
Session 1 -- Tutorial on ***Microfluidics for the Physics of Living Systems: Introduction, theory and practice*** (Prof. Erel Levine, Harvard)

9:45-10:15am Break + ***Reimbursement information*** (Daphne Klemme) + *Dinner sign up + Tubing sign up / waiver form*

10:15 – 11:15 am Session 2 -- Nucleic acids

10:15-10:45am ***Two-step Kinetics of the U1A–SL2 RNA Complex Dissociation*** (Guzman-Sanchez, UIUC)

10:45-11:15am ***DNA catch bond*** (Tung Le, Georgia Tech)

11:15-11:30am Break

11:30am-12:30pm Session 3 -- Motors and transport

11:30-12 noon ***Molecular dynamics study of directional translocation and subunit coordination in a hexameric helicase motor*** (Wen Ma, UIUC))

12 noon-12:30pm ***Super-resolution imaging of glutamate receptors trafficking at live synapses*** (En Cai, UIUC)

12:30 pm - *Lunch, provided outside of Bass 305, followed by tubing down the Farmington River*

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7:00 pm - *Yale student-hosted dinners in New Haven restaurants*

Thursday, July 12

8:00 – 8:30 am *Breakfast outside of Bass 305*

8:30 – 9:45 am Session 1 -- Tutorial on ***Microfluidics in the Physics of Living Systems: Applications to live animals*** (Dr. Ronan Kopito, Harvard)

9:45am-10:00am *Break*

10:00 – 11:00 am Session 2 – Folding and packing 1

10:00-10:30am ***The power of simple hard sphere models: from predictions of side-chain dihedral angle distributions to protein stability*** (Alice Zhou, Yale)

10:30-11:00 ***Thermodynamics and kinetics of apozurin folding under macromolecular crowding effect and chemical interference*** (Fabio Zegarra, U. of Houston)

Break 11:00-11:15

11:15-12:15 Session 3 – Folding and packing 2

11:15-11:45am ***Free energy landscape of high-dimensional macromolecular systems*** (Wenwei Zheng, Rice)

11:45-12:15am ***Studying the Pericellular Matrix with Quantitative Particle Exclusion Assays and Optical Force Probe Microscopy*** (Patrick Chang, Georgia Tech.)

12:15 – 1:30 pm *Lunch at the Yale food trucks, Prospect Street by the Yale whale*

1:30-3:00pm Session 4 – Networks and complex systems 1

1:30-2:00pm ***Collective mechanics of epithelial cell colonies*** (Aaron Mertz, Yale)

2:00-2:30pm ***A yeast model for division of labor*** (Mary Wahl, Harvard)

2:30-3:00pm ***Extracellular resource diffusion and the evolution of population structure in biofilms*** (David Borenstein, Princeton)

3:00 – 3:15 pm Break

3:15 – 4:15 pm Session 5 – Networks and complex systems 2

3:15-3:45pm ***Quantifying transcriptional regulation in fate determination networks: from bacteria to mammals*** (Leonardo Andres Sepulveda Duran, Rice U)

3:45-4:15 pm ***Tracking dynamics of adaptation in laboratory yeast sheds light on the distribution of fitness effects and emergence of frequency dependent selection*** (Genya Frenkel, Harvard)

4:15 pm – 6:20 pm Poster session in Bass 405

6:20 pm Dinner at Yale in Bass 405

7:30 pm – 8:30pm Evening session in Bass 305

Tutorial on ***Static and dynamic odor representations in the fly brain*** (Dr. Carlotta Martelli, Yale)

Friday, July 13

8:00 – 8:30 am *Breakfast outside of Bass 305*

8:30 – 9:45 am Session 1 -- Tutorial on ***Microfluidics for the Physics of Living Systems: Applications to single cell organisms*** (Dr. Jeff Moffitt, Harvard)

9:45-9:50am Break

9:50 – 10:40 am Session 2 --Tutorial on ***How to talk to physicists AND biologists*** (Prof. Eric Dufresne, Yale)

10:40 – 10:45am *Break*

10:45 – 12:15 am Session 3 – Physics of multicellular organisms

11:45-11:15am ***Using FCS to Assess Protein-Protein Interaction in Live Zebrafish Embryos*** (Garrett Cobb, Yale)

11:15-11:45 am ***The role of functional surfaces in the locomotion of snakes*** (Hamid Marvi, Georgia Tech.)

11:45am-12:15pm **TBA** (Aram Davtyan, U. Maryland)

12:15 – 12:45 pm Concluding remarks and discussion

12:45 pm Lunch at the Yale food trucks on Prospect Street by the Yale whale and Yale tours from 149, Elm Street at 1:30pm ((http://www.yale.edu/visitor/tours.html) and/or Depart