



***INSTITUTE FOR BIOPHYSICAL DYNAMICS
& JAMES FRANCK INSTITUTE***

Presents

Jacques Prost, Ph.D.

ESPCI & Institut Curie, Paris

***Constructing tools for describing
cell & tissue dynamics***

Much of the cell mechanics, morphology and motility is determined by the dynamical properties of an actin network moving under the action of molecular motors and by a continuous process of polymerization/depolymerization called treadmilling. The actin network constitutes a physical gel the cross-links of which are both temporary and mobile. It is more complex than a physical gel in that it has a macroscopic polarity due to the microscopic polarity of actin filaments and in that the cross-links are dynamically redistributed by molecular motors. I will show how one can write down a set of phenomenological equations, which can describe this situation. I will illustrate the usefulness of this approach by considering a few examples concerning cell dynamics such as cell duplication, cell wound healing and stress fibers. Eventually, I will show how a simple extension of this theory allows us to discuss salient features of tissue dynamics, such as growth of micro-metastasis and intestinal villi.

Thursday, 8 December 2011

1:00 p.m.

**Ellen & Melvin Gordon Center for Integrative Science
W301/303**

If you need assistance, please contact Julie Feder 4-2846.