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Dimitrios Vavylonis* (vavylonis@lehigh.edu), Department of Physics, Lehigh University, 16 Memorial Drive East, Bethlehem, PA 18015. *Modeling actin cytoskeleton dynamics in fission yeast.*

Many basic cell functions such as cell motility, cytokinesis, and establishment of cell polarity, depend on the ability of actin proteins to polymerize into long filaments. Fission yeast is a model organism for the study of cytokinesis and actin dynamics. In fission yeast formin proteins nucleate actin filaments for the actomyosin contractile ring during cytokinesis (the last step of cell division) and actin filament bundles, "actin cables", for intracellular transport and establishment of cell polarity. I will present results of a collaborative work involving a combination of live cell imaging and mathematical and computational modeling that addresses the dynamical mechanisms of formin-mediated formation of the contractile ring and of actin cables. (Received February 12, 2008)