

Models for GTPases in Cell Polarization

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IN this talk I will survey work done in my group on the dynamics of GTPases in cell polarization and motility. First, I will outline the link between detailed biochemical signaling models and more abstract, simplified model prototypes that we have studied. I will then briefly highlight mathematical techniques devised over the last few years that help to parametrize and understand the dynamics of reaction-diffusion models that arise in studying such problems. Prominent among these is a recent method called Local Perturbation Analysis, and due to AFM Maree and V Grieneisen. I will highlight work by W R Holmes utilizing this technique, and (if time permits) discuss the recent 2D cell motility simulations by M Zajac. I will conclude with some recent connections to experimental data in collaboration with the group of Andre Levchenko.