

A bulk/surface model for active-transport-induced polarisation in biological cells

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We consider a model for actin-mediated spontaneous cell polarisation that is given by a specific coupled bulk/surface system for advection and diffusion of interacting chemical species in biological cells. We discuss the well-posedness of the model, whereby the coupling at the boundary is the main source of analytical difficulty. We present a priori L_p -estimates, a global existence result of classical solutions for small data, and existence of a family of steady-state solutions.

This is joint work with Keith Anguige (Freiburg).