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Title:	Study of Reaction-Diffusion systems and Formation of Patterns in Active Fluids
Authors:	Shivam (/jspui/browse?type=author&value=Shivam)
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Abstract:	AM Turing in 1952 said that reaction diffusion mechanisms are responsible for pattern formation in developing organisms. In this thesis, I will be trying to recreate the work of Justin Bois which was inspired by Turing. We discuss pattern formation in active uids in which active stress is regulated by diffusing molecular components. Active uids are an interesting new class of non-equilibrium systems in physics. In such uids, the system is forced out of equilibrium by the individual active particles - in contrast to driven systems where the system is forced out of equilibrium by some external forces. For this work I will consider the dynamics of the actomyosin cell cortex in which biochemical pathways regulate active stress. We will discuss how active uids functions and how a single diffusing species up regulates active stress which results in steady ow and concentration patterns.
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