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Title:	Pattern Formation in Active Fluids: Turing and Beyond
Authors:	Athani, Madhuvanthi G (/jspui/browse?type=author&value=Athani%2C+Madhuvanthi+G)
Keywords:	Turing and Beyond Linear Stability Analysis Numerical Solution and Analysis Active Fluid In Higher Dimensions Discretization Procedure
Issue Date:	1-Sep-2018
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Abstract:	The work at present incorporates mechano-chemical effects to extend Alan Turing's hypothesis on pattern formation. The patterns here are formed because the active stress gradients driving the hydrodynamic flows advect the stress regulator which balances out the diffusive fluxes. The first part of the work considers a mechanism where one diffusing species, in one dimension, is seen to up-regulate the active stress, which results in pattern formation. In the second part of the work two chemical species are considered in one dimension where the fast-diffusing species is taken as an up-regulator of the active stress and the slow-diffusing species is taken as a down-regulator of the active stress. Here, spontaneous pulsatory patterns are seen to emerge. This work can also be extended to higher dimensions. The entire work is based on two PRL papers cited in the reference.
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