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Asymptotic Behavior for Solution of Reaction-Diffusion Systems

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Abstract: The existence, uniqueness, and asymptotic behavior of the solution of a balanced two component reaction-diffusion system have been investigated. It was shown that a global and unique solution existed and its second component can be estimated using the Lyapunov Functional. It was, also, demonstrated that each component of the solution converged, at infinity, to a constant which can be found in terms of the reacting function and the initial data. The results of the current research can be used in several areas of applied mathematics, especially when the system equations originate from mathematical models of real systems such as in Biology, Chemistry, Population Dynamics, and other disciplines.

Keywords : Asymptotic Behavior, Solution of Reaction-Diffusion