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Global Solutions of Reaction-Diffusion Systems

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Preface

This monograph is motivated by some problems from Mathematical Biology. Although there exists an extensive literature about nonlinear parabolic differential equations, none of the known results could be used to prove global existence of solutions for the reaction-diffusion systems considered in this monograph. In this situation, I gave an ad hoc proof of global existence for the one-dimensional reaction-diffusion system with reaction $A + B \rightleftharpoons C$ subject to the mass action law. Afterwards it turned out that the method used could be generalized and applied to other problems as well. For the time being, the subject is not yet exhausted. Further interesting examples from applications are needed in order to build a substantial theory which is not just an unnecessarily abstract disguise of some specific problem. The author hopes that this monograph will be useful to stimulate research in this direction.

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