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Titolo	Evolution Equations Arising in the Modelling of Life Sciences [[electronic resource] /] / by Messoud Efendiev
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Nota di contenuto	Preface -- 1 Auxiliary Materials -- 2 Global attractors for autonomous evolution equations -- 3 Verifying life science models containing diffusion, transport and interaction of species -- 4 Positivity criterion for systems of stochastic PDEs -- Existence and longtime behaviour of a biofilm model -- 6 The blood coagulation cascade in a perfusion experiment: example from pharmaceutical industry -- Index.
Sommario/riassunto	This book deals with the modeling, analysis and simulation of problems arising in the life sciences, and especially in biological processes. The models and findings presented result from intensive discussions with microbiologists, doctors and medical staff, physicists, chemists and industrial engineers and are based on experimental data. They lead to a new class of degenerate density-dependent nonlinear reaction-diffusion convective equations that simultaneously comprise two kinds

of degeneracy: porous-medium and fast-diffusion type degeneracy. To date, this class is still not clearly understood in the mathematical literature and thus especially interesting. The author both derives realistic life science models and their above-mentioned governing equations of the degenerate types and systematically studies these classes of equations. In each concrete case well-posedness, the dependence of solutions on boundary conditions reflecting some properties of the environment, and the large-time behavior of solutions are investigated and in some instances also studied numerically.