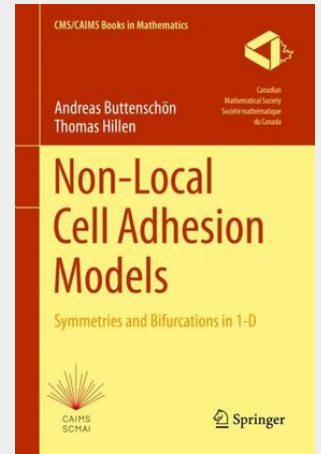


Hillen / Buttenschön

Non-Local Cell Adhesion Models

Symmetries and Bifurcations in 1-D

This monograph considers the mathematical modeling of cellular adhesion, a key interaction force in cell biology. While deeply grounded in the biological application of cell adhesion and tissue formation, this monograph focuses on the mathematical analysis of non-local adhesion models. The novel aspect is the non-local term (an integral operator), which accounts for forces generated by long ranged cell interactions. The analysis of non-local models has started only recently, and it has become a vibrant area of applied mathematics. This monograph contributes a systematic analysis of steady states and their bifurcation structure, combining global bifurcation results pioneered by Rabinowitz, equivariant bifurcation theory, and the symmetries of the non-local term. These methods allow readers to analyze and understand cell adhesion on a deep level.



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