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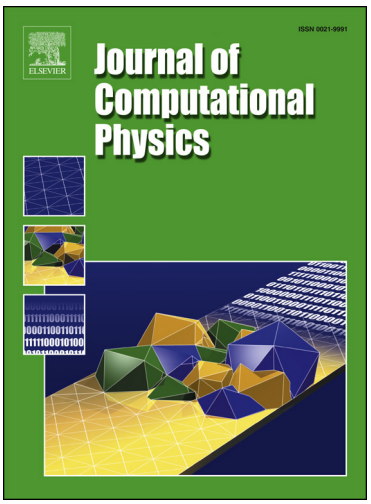

A convergent numerical scheme for integrodifferential kinetic models of angiogenesis

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A convergent numerical scheme for integrodifferential kinetic models of angiogenesis

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Abstract

We study a robust finite difference scheme for integrodifferential kinetic systems of Fokker-Planck type modeling tumor driven blood vessel growth. The scheme is of order one and enjoys positivity features. We analyze stability and convergence properties, and show that soliton-like asymptotic solutions are correctly captured. We also find good agreement with the solution of the original stochastic model from which the deterministic kinetic equations are derived working with ensemble averages. A numerical study clarifies the influence of velocity cut-offs on the solutions for exponentially decaying data.

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