

A volume-surface reaction-diffusion system modeling asymmetric stem cell division: quasi-steady-state approximation and convergence to equilibrium

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Abstract:

In this talk, we investigate a reaction-diffusion system which models asymmetric stem cell division. The model has the novelty of combination between volume-surface diffusion and complex reaction kinetics. We first prove the existence of a unique global solution, and then prove the convergence to equilibrium for large time.

Moreover, we study the limiting behavior of the system as one of the reaction rates goes to infinity.