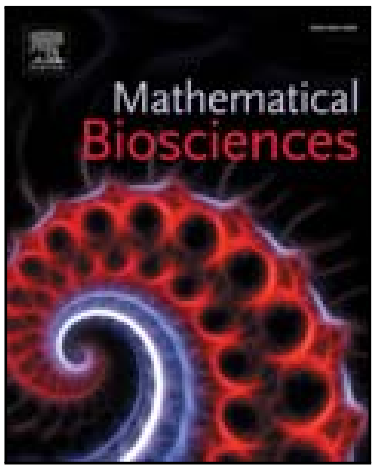

Mathematical modeling and numerical simulation of the mitotic spindle orientation system

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Highlights

- A mathematical model was developed to describe the spindle position checkpoint activation and silencing in budding yeast.
- The numerical simulations of the nonlinear ordinary differential equations model reproduce the experimental features of SPOC mechanism.
- Bifurcation analysis reveals the orientation dependency on spindle pole bodies, and how this dependence is altered by parameter values.
- Partial differential equations based model and linear stability show the effects of diffusion coefficient on SPOC mechanism.