



$$\begin{aligned}\frac{\partial A}{\partial t} &= \Phi \left(\frac{k_1 A - k_2 R + \beta}{1 + k_1 A - k_2 R + \beta} \right) - A \\ \frac{\partial R}{\partial t} &= \frac{k_3 A}{1 + k_3 A} + D_R \nabla^2 R - R\end{aligned}$$