

Scratch Tex file for rendering equations

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1 Purkinje Set of Equations

For CCOM seminar slides...

Vector of cytosolic concentrations:

$$\begin{aligned}\partial_t u_i &= \nabla \cdot (D_{ij} \nabla u_j) + f_i(u, t) \text{ in } \Omega \\ D_{ij}(\partial_n u_j) &= J_{ik}(u|_{\partial\Omega_k}, v, t) \text{ on } \partial\Omega_k\end{aligned}$$

System of ODEs:

$$\partial_t v_{ik} = g_{ik}(u|_{\partial\Omega_k}, v, t) \text{ on } \partial\Omega_k$$

Example of coupling

$$J_{13} = a_0(a_1 - u_1) \left[\frac{v_1 u_1 u_2}{(u_1 + a_2)(u_2 + a_3)} \right]^3 - \frac{a_4 u_1^2}{u_1^2 + a_5} \quad (1)$$

$$g_{13} = (b_0 - (u_1|_{\partial\Omega_3} + b_0)v_1)b_1 \quad (2)$$

Heflrich Energy:

$$e = \kappa_H H^2 + \kappa_G K \quad (3)$$