

An obstacle problem for cell polarization

Barbara Niethammer^{1,*}, **Matthias Röger**², **Juan J.L. Velázquez**¹

¹*Institut für Angewandte Mathematik, Universität Bonn, Germany*

²*Mathematische Fakultät, TU Dortmund, Germany*

*Email: niethammer@iam.uni-bonn.de

We investigate a model for cell polarization where a diffusion equation in the inner cell is coupled to reaction diffusion equations on the cell membrane. In a certain scaling limit we rigorously derive a variational problem which allows to characterize the parameter regime for the onset of polarization.