## Theme issue: Coupling geometric partial differential equations with physics for cell morphology, motility and pattern formation

### INTRODUCTION

A note on how to develop interdisciplinary collaborations between experimentalists and theoreticians
A Madzvamuse and SR Lubkin

### ARTICLES

**Quantifying cellular and subcellular stretches in embryonic lung epithelia under peristalsis: where to look for mechanosensing**
KK Bokka, EC Jesudason, D Warburton and SR Lubkin

**Multimodality imaging and mathematical modelling of drug delivery to glioblastomas**
A Boujelben, M Watson, S McDougall, Y-F Yen, ER Gerstner, C Catana, T Deisboeck, TT Batchelor, D Boas, B Rosen, J Kalpathy-Cramer and MAJ Chaplain

**Progress and perspectives in signal transduction, actin dynamics, and movement at the cell and tissue level: lessons from Dictyostelium**
T Bretschneider, HG Othmer and CJ Weijer

**Hybrid vertex-midline modelling of elongated plant organs**
JA Fozard, MJ Bennett, JR King and OE Jensen

**A mathematical model of GTPase pattern formation during single-cell wound repair**
WR Holmes, AE Golding, WM Bement and L Edelstein-Keshet

**Local modulation of chemoattractant concentrations by single cells: dissection using a bulk-surface computational model**
JA Mackenzie, M Nolan and RH Insall

**Collective migration under hydrodynamic interactions: a computational approach**
W Marth and A Voigt

**Prediction of traction forces of motile cells**
C Roux, A Duperray, VM Laurent, R Michel, V Peschetola, C Verdier and J Étienne

**Measuring cellular traction forces on non-planar substrates**
JRD Soine, N Hersch, G Dreissen, N Hampe, B Hoffmann, R Merkel and US Schwarz

**Review on experiment-based two- and three-dimensional models for wound healing**
D Weihs, A Gefen and FJ Vermolen

**Comparison of cell migration mechanical strategies in three-dimensional matrices: a computational study**
J Zhu and A Mogilner