

# Programme

## Monday 16 October 2017

09.00-09.30	Registration in the foyer of the Dalhousie Building, University of Dundee
09.30-09.40	Opening and practical details, Lecture Theatre 4
09.40-10.20	<b>Mariya Ptashnyk</b> (University of Dundee ) <i>Multiscale modelling and analysis of plant tissue biomechanics and growth</i>
10.20-10.40	<b>Roxanna Barry</b> ( University of Glasgow) <i>Discrete-to-continuum modelling of cells to tissue</i>
10.40-11.10	Morning coffee
11.10-11.30	<b>Antoine Fruleux</b> (Ecole Normale Supérieure de Lyon) <i>Multi-scale aspects in plant development</i>
11.30-12.10	<b>Henrik Jonsson</b> (DAMTP and Sainsbury Laboratory) <i>Growth, form and organisation of plant meristems</i>
12.10-13.30	Lunch provided
13.30-14.10	<b>Clare Yu</b> (University of California, Irvine) <i>Polarization, proliferation and propagation in the developing Drosophila wing disc</i>
14.10-14.30	<b>Rastko Sknepnek</b> (University of Dundee) <i>Self-propelled Vertex Model for cell-resolution description of epithelial tissue mechanics</i>
14.30-14.50	<b>Hervé Turlier</b> (Collège de France) <i>Physics of early mammalian embryo morphogenesis</i>
14.50-15.10	<b>Murat Erkurt</b> (Imperial College London) <i>"LEGO GAME": Symmetry breaking in embryonic morphogenesis</i>
15.10-15.40	Afternoon tea
15.40-16.20	<b>Naomi Nakayama</b> (University of Edinburgh) <i>Dissecting the physico-chemical regulation of cell behaviours in plant tissues</i>
16.20-17.00	<b>Alexis Peaucelle</b> (INRA Versailles) <i>Good Vibrations: High-frequency oscillations potentially linked to the growth of the cell wall</i>
17.00-17.05	Poster presentations: <b>Yana Vereshchaga</b> (Johannes Kepler University) <i>Knowledge acquisition from a biomechanical system by fuzzy logic: human gate transition example</i>  <b>Roseanna Gossmann</b> (Tulane University) <i>A simplified human birth model</i>
17.05	Welcome drinks

## Tuesday 17 October 2017

09.00-09.40	<b>Stephen Childress</b> (New York University) <i>Valveless rectification of flow under oscillatory forcing</i>
09.40-10.20	<b>Lisa Fauci</b> (Tulane University) <i>Biofluids of reproduction</i>
10.20-10.40	<b>David Smith</b> (University of Birmingham) <i>Meshfree and efficient modelling of swimming cells</i>
10.40-11.10	Morning coffee
11.10-11.50	<b>David Hu</b> (Georgia Tech) <i>Cleaning with spines, from eyelashes to cat tongues</i>
11.50-12.10	<b>Mason Dean</b> (Max Planck Institute of Colloids & Interfaces) <i>Biological strategies for fatigue and wear avoidance: lessons from stingray skeletons and teeth</i>
12.10-13.30	Lunch provided
13.30-14.00	<b>Matthew Jarron</b> ; the Centennial of D'Arcy Thompson's book
14.00-15.10	Visit to the D'Arcy Thompson Zoology Museum
15.10-15.40	Afternoon tea
15.40-16.20	<b>Herbert Levine</b> (Rice University) <i>A possible role for phenotypic pattern formation in cancer metastasis</i>
16.20-16.40	<b>Fabian Spill</b> (University of Birmingham) <i>Interplay of molecular and mechanical stimuli in tissue growth and cancer</i>
16.40-17.00	<b>Daniel Alejandro Matoz-Fernandez</b> (University of Dundee) <i>Active mechanics in dense systems</i>
17.00-17.20	<b>Aurore Loisy</b> (University of Bristol) <i>Negative apparent viscosities, non-monotonic flow curves and multiple mechanical equilibria in the rheology of active suspensions</i>

## Wednesday 18 October 2017

09.00-09.40	<b>Nicholas Hill</b> (University of Glasgow) <i>Self-generated chemotactic gradients</i>
09.40-10.20	<b>Ramin Golestanian</b> (University of Oxford) <i>Homeostasis and dynamic phase transition in a simple model of dividing chemotactic cells</i>
10.20-10.40	<b>Silke Henkes</b> (University of Aberdeen) <i>Using active matter to model the mammalian cornea</i>
10.40-11.10	Morning coffee
11.10-11.30	<b>Raluca Eftimie</b> (University of Dundee) <i>Communication and pattern formation in self-organised systems: from cell aggregations to animal aggregations</i>
11.30-12.10	<b>Martine Ben Amar</b> (École Normale Supérieure) <i>Brain morphology</i>
12.10-13.30	Lunch provided
14.00	Departure for excursion to Blair Castle
18.30	Dinner at Atholl Palace Hotel, Pitlochry
approx 21.30	Back to Dundee
	Note: Those attending only dinner or only excursion may travel by train between Dundee and Pitlochry.

## Thursday 19 October 2017

09.00-09.40	<b>Lynn Zechiedrich</b> (Baylor College of Medicine) <i>Beyond the static DNA models of Watson and Crick</i>
09.40-10.20	<b>Jacques Prost</b> (CNRS; National University of Singapore) <i>Elementary contractile unit</i>
10.20-10.40	<b>Luke Coburn</b> (University of Aberdeen) <i>Emergence of myosin chains in cell monolayers: simulation and experiment</i>
10.40-11.10	Morning coffee
11.10-11.50	<b>Mike Shelley</b> (New York University) <i>Active materials and self-assembled structures</i>
11.50-12.10	<b>Amin Doostmohammadi</b> (University of Oxford) <i>Defect-mediated morphologies and cell fate in growing cell colonies</i>
12.10-13.30	Lunch provided
13.30-14.10	<b>Pierre Degond</b> (Imperial College London) <i>Models of emergent networks</i>
14.10-14.50	<b>Christophe Eloy</b> (IRPHE/Centrale Marseille) <i>How sunlight and wind model tree shapes</i>
14.50-15.10	<b>Julia Mackenzie</b> (University of Glasgow) <i>A structured tree model for the coronary circulation</i>
15.10-15.40	Afternoon tea
15.40-16.20	<b>Sunghwan Jung</b> (Virginia Polytechnic Institute and State University) <i>Mechanics-based allometry in chewing and jumping</i>
16.20-16.40	<b>Madeleine Seale</b> (University of Edinburgh) <i>The dandelion clock: biomechanics of dandelion dispersal</i>

## Friday 20 October 2017

09.00-09.40	<b>Mimi Koehl</b> (University of California, Berkeley) <i>How kelp in drag lose their ruffles</i>
09.40-10.00	<b>Yuchen Long</b> (École Normale Supérieure de Lyon) <i>Cell-specific turgor pressure regulates heterogeneous growth in the Arabidopsis shoot apical meristem</i>
10.00-10.40	<b>Rosemary Dyson</b> (University of Birmingham) <i>Fibre-reinforced fluids: extracellular matrix and plants</i>
10.40-11.10	Morning coffee
11.10-11.50	<b>Matthew Turner</b> (University of Warwick) <i>Collective motion and intelligence</i>
11.50	Close of workshop