

BSDB Autumn Meeting 2007

Systems Approaches to Development

University of Sheffield. 5–7 September 2007

Organisers: Andrew Fleming, Alfonso Martinez-Arias, Nick Monk.

There has been a recent surge in interest in the incorporation of modelling approaches in developmental biology.

This meeting aims to provide an overview across a range of biological systems and levels of organization of the progress that has been made in this emerging area of developmental biology. The approaches include quantitative aspects of

developmental biology, the acquisition of large-scale data sets and the use of mathematical and computational techniques to interpret these data. The meeting will be of interest to a broad spectrum of developmental biologists, as well as systems biologists and modellers with an interest in development.

Speakers include:

Richard Adams (UK), Malcolm Bennet (UK), Enrico Coen (UK), Marcos Gonzalez-Gaitan (D), Dirk Inze (B), Johannes Jaeger (UK), Hans Othmer (USA), Luis Serrano (D), James Sharpe (E), John Tyson (USA), Lewis Wolpert (UK)

Scientific Programme

Wednesday 5th September

Time	Conference Session
10.30	Registration
12.30-13.45	Lunch
13.50-14.00	Introduction and Welcome
14.00-14.40	Dirk Inze (Ghent, Belgium) Systems biology of the plant cell cycle (Talk supported by the Society for Experimental Biology)
14.40-15.20	John Tyson (Virginia, USA) Regulation of growth and division in fission yeast cells
15.20-15.40	J Bard (Edinburgh, UK) A systems approach to formalising mouse development and to identifying gene function
15.40-16.10	Tea/Coffee Break & Exhibition/Poster Viewing Time
16.10-16.50	Hans Othmer (Minnesota, USA) Mathematical models for spatial patterning in <i>Drosophila melanogaster</i>
16.50-17.30	Jim Haseloff (Cambridge, UK) 3D visualisation and modelling of plant morphogenesis
18.00	Drinks Reception
19.00	Dinner

Thursday 6th September

Time	Conference Session
08.30	Registration
9.00-9.40	Luis Serrano (Barcelona, Spain) Evolvability and hierarchy in rewired bacterial gene networks
9.40-10.20	Paulien Hogeweg (Utrecht, The Netherlands) Multilevel modelling of morphogenesis: chick gastrulation and somitogenesis
10.20-10.40	E Dessaud (London, UK) Interpretation of a morphogen gradient by temporal adaptation mechanism that integrates the strength and duration of signalling
10.40-11.10	Tea/Coffee Break & Exhibition/Poster Viewing Time
11.10-11.50	Andrew Oates (MPI Dresden, Germany) Synchrony dynamics of a multicellular coupled oscillator network in the vertebrate segmentation clock
11.50-12.10	D Irons (Sheffield, UK) The role of negative feedback in Hedgehog signalling
12.10-14.00	Lunch Break & Exhibition/ Poster Judging
14.00-14.40	Lewis Wolpert (London, UK) Positional information and gradients
14.40-15.20	Marcos Gonzalez Gaitan (MPI Dresden, Germany) Kinetics of morphogen gradient formation
15.20-15.40	RE Baker (Oxford, UK) A mechanism for morphogen-controlled domain growth
15.40-16.10	Tea/Coffee Break & Exhibition/Poster Viewing Time
16.10-16.50	Johannes Jaeger (Cambridge, UK) Shift happens: towards a general relativistic theory of positional information
16.50-17.30	Richard Adams- (Cambridge, UK) Measuring morphogenetic changes in animal tissues
17.30-17.50	L Butler (Cambridge, UK) Quantitative analysis of cell and tissue behaviours during germ-band extension in the <i>Drosophila</i> embryo
17.50-18.20	BBSRC Session on Funding Opportunities in Systems Biology
18.30	Poster awards
19.00	Conference Dinner at "The Edge"

Friday 7th September

Time	Conference Session
08.30	Registration
9.00-9.40	James Sharpe (Barcelona, Spain) Towards a 4D computer simulation of vertebrate limb development
9.40-10.20	Enrico Coen (JIC Norwich, UK) A multiscale approach to the analysis of leaf growth and form
10.20-10.40	RMH Merks (Ghent, Belgium) Modelling formation of auxin transport channels during leaf development: a travelling-wave hypothesis
10.40-11.10	Tea/Coffee Break & Exhibition/Poster Viewing Time
11.10-11.50	Malcolm Bennett- (Nottingham, UK) Dissecting the hormonal control of root cell elongation
11.50-12.30	Jordi Garcia Ojalvo (Barcelona, Spain) Identification of developmental genetic circuits from dynamical constraints
12.30	Lunch and departure