

Programme

Wednesday 14 May 2008

13:00 - 13:50 Registration, Lunch

13:50 - 14:00 Welcome - Malcolm Bennett and Tony Pridmore (local organisers)

Session 1: Root growth and development

Chair: Malcolm Bennett

14:00 - 14:30 **Veronica Grieneisen, Utrecht University**

The importance of time and space scales for auxin patterning in root development

14:30 - 15:00 **Angharad Jones, University of Bristol**

Auxin transport through non-hair cells sustains root-hair development

15:00 - 15:30 **Pontus Melke**

Modelling Auxin Gradients and their Effects on Planar Polarity of Root-Hair Positioning

15:30 - 16:00 **Christophe Godin, INRIA, Montpellier**

Is root branching also governed by inhibitory fields?

16:00 - 16:30 Tea/Coffee

16:30 - 17:00 **Malcolm Bennett, CPIB, University of Nottingham**

Modelling Auxin Regulated Lateral Root Emergence

17:00 - 17:20 **Philippe Nacry, INRA, Montpellier**

The Arabidopsis NRT1.1 transporter acts as a nitrate sensor and governs root colonization of nitrate-rich patches via modification of local auxin concentration

17:20 - 17:40 **Mikael Lucas, INRA, Montpellier**

Cellular Model of Auxin Fluxes and Lateral Root Initiation in Arabidopsis

17:40 - 18:00 **Jamie Twycross, CPIB, University of Nottingham**

Stochastic Computational Modelling of Plant Systems

18:00 Check-in at NCSL

19:00 Dinner at NCSL

Thursday 15 May 2008

Session 2: Vascular patterning

Chair: Thomas Berleth

- 09:00 - 09:30 **Anne-Gaelle Rolland Lagan, University of Ottawa**
Analysis of Leaf Vein Patterning: a Quantitative Approach
- 09:30 - 10:00 **Thomas Berleth, University of Toronto**
Control of leaf vascular patterning
- 10:00 - 10:30 **Roeland Merks, VIB Ghent**
Modeling Formation of Auxin Transport Channels During Leaf Development: A Travelling-wave Hypothesis

10:30 - 11:00 Tea/Coffee

Session 3: Phyllotaxis

Chair: Cris Kuhlemeier

- 11:00 - 11:30 **Jan Traas, RDP Laboratory, Lyon**
The regulation of morphogenesis at the shoot apex
- 11:30 - 12:00 **Marcus Heisler, CalTech**
Understanding the plant cell axis
- 12:00 - 12:30 **Cris Kuhlemeier, University of Bern**
A transport-based model for phyllotaxis and midvein formation

12:30-13:20 Lunch

Session 4: Modelling software

Chair: Eric Kramer

- 13:20 - 13:50 **Henrik Jonsson, Lund University**
Modeling software developed within the computableplant project
- 13:50 - 14:20 **Eric Kramer, Simon's Rock & CPIB, University of Nottingham**
A discrete review of auxin models
- 14:20 - 14:40 **Przemyslaw Prusinkiewicz, University of Calgary**
Plant modeling with L-studio
- 14:40 - 15:00 **Eric Mjolsness, UC Irvine**
Cellerator, Sigmoid, Cellzilla, and Plenum

Social event: Trip to Wollaton Hall and Park

- 15:15 **Coach leaves Exchange for Wollaton Park**
Set in over 500 acres of historic deer park, Wollaton Hall is a spectacular Tudor building, designed by Robert Smythson and completed in 1588, it is now the home to the city's Natural History Museum. Wollaton's Courtyard Stables are home to the city's Industrial Museum, Steam Engine House, Wollaton Visitor Centre and the Yard Gallery, a vibrant exhibition space.
The Hall closes at 17:00
- 17:15 **Coach leaves Wollaton Park, returning to NCSL**

18:15 Coach leaves NCSL for The Olde Trip to Jerusalem: 'The oldest pub in England'

19:30 Dinner at Mem Saab, Nottingham City Centre

Friday 16 May 2008

Session 5: Shoot branching control

Chair: Ottoline Leyser

- 09:10 – 09:40 **Ottoline Leyser, University of York**
Competition Between Auxin Canalisation Paths as a Signalling Mechanism in Shoot Branching Control
- 09:40 - 10:10 **Przemyslaw Prusinkiewicz, University of Calgary**
Integrative model of bud activation in *Arabidopsis thaliana*
- 10:10 - 10:30 **Enrique Lopez-Juez, Royal Holloway, Univ. London**
Hormonal Reprogramming in the Shoot Apex of Arabidopsis During Deetiolation and Leaf Initiation.
- 10:30 - 11:10 Tea/Coffee
- 11:10 - 11:40 **Remko Offringa, Leiden University**
The ‘Plant Compass’: Kinases Directing Auxin Transport During Inflorescence Development
- 11:40 - 12:00 **Kees Boot, Leiden University, the Netherlands**
Modelling the Dynamics of Polar Auxin Transport

12:00 - 13:00 Lunch

Session 6: Model Parameterisation

Chair: Eric Mjolsness

- 13:00 - 13:30 **Eric Kramer, Simon’s Rock & CPIB**
Model parameters: the devil in the details
- 13:30 - 14:00 **Eric Mjolsness, UC Irvine**
Prospects for Computational Morphodynamics
- 14:00 - 14:20 **Ian Kerr, University of Nottingham**
Obtaining Quantitative Data for Auxin Transporters: The Binding of Auxin (indole-3-acetic acid) to Arabidopsis AUX1
- 14:20 - 14:40 **Alistair Middleton, CPIB, University of Nottingham**
Mathematical Model of the Aux/IAA Response to Auxin
- 14:40 - 15:00 **Leah Band, CPIB, University of Nottingham**
A Multiscale Model of Auxin Transport in the Root Elongation Zone

15:00 - 15:30 **Discussions/ Future developments**

15:30 Tea/Coffee and End of workshop