

## Fourth Annual Study Group Success



The model works! Simulating the Syngenta tomato yield problem at the 2011 Mathematics in the Plant Sciences Study Group meeting.

The fourth Mathematics in the Plant Sciences Study Group, co-organised with GARNet, took place 4-7 January 2011 at the University of Nottingham. This workshop enables plant biologists to get their research questions tackled by enthusiastic mathematicians.

This year, problems were presented by Alessandra Devoto (Royal Holloway), Kerrie Ferrar (Aberystwyth), Zoe Wilson (Nottingham) and Ryan Ramsey (Syngenta), and covered topics from fundamental plant biology to biofuel and food crop yields.

The next study group will take place at Nottingham on 3-6 January 2012, and we are looking for new problems. **If you are a plant scientist with an interesting research question for modellers to tackle**, please get in touch ([susie@cpib.ac.uk](mailto:susie@cpib.ac.uk)).

## Advanced Workshops at CPIB

The beginning of 2011 saw two advanced workshops taking place at CPIB. The workshop in January addressed **lateral root development and modelling**, including presentations from Tom Beeckman (VIB, Ghent) and Hidehiro Fukaki (Kobe) on lateral root initiation, Niko Geldner (Lausanne) and Reidunn B. Aalen (Oslo) on lateral root emergence and Jose Alonso (NCSU) and Christophe Godin (Montpellier) on new tools and approaches.

In February, researchers gathered for a **cell elongation advanced workshop**. Catherine Rechenmann (CNRS, Gif), Kris Vissenberg (Antwerp), Rishi Bhalerao (SLU, Umea) and Gerrit Beemster (Antwerp) contributed to sessions addressing common themes in cell expansion in roots, leaves and hypocotyls, and new approaches to studying cell expansion.



## Engaging with the Public

As part of National Science and Engineering Week, CPIB will be running **hands-on activities** at 'Science in the Park', a science fair for the public at Wollaton Hall in Nottingham on Saturday 12 March. CPIB will also be engaging with the public at the University's **MayFest community open day** on 7 May.

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**New faces**

Ive De Smet is a new **David Phillips BBSRC Research Fellow** who recently joined Nottingham from Ghent University. Ive and his group study the role of membrane-associated receptor-like kinases in registering and conveying positional information during lateral root development.



CPIB also welcomes new postdoctoral researchers Antoine Larrieu and Sheila Smitheman.

**Upcoming international meetings**

**Plant Growth Biology and Modeling 2011**  
19-21 September - Elche, Spain  
<http://pgbm2011.umh.es/>

This meeting, co-organised by Agron-Omics, CPIB and Universidad Miguel Hernandez, will cover the latest advances in the biology, modelling and automated phenotyping of leaf and root development.

Confirmed speakers include Philip Benfey, Malcolm Bennett, Thomas Berleth, Enrico Coen, Christine Granier, Sarah Hake, Ykä Helariutta, Pierre Hilson, Dirk Inzé, Patrick Laufs, Elliot Meyerowitz, José Luis Micol, Scott Poethig, Przemyslaw Prusinkiewicz and Ben Scheres.

**Ninth Annual Symposium in Plant Biology**  
**Plant Biology Graduate Program at University of Massachusetts Amherst** 8-9 October 2011

<http://www.bio.umass.edu/plantbio/symposium11.html>

The theme of this year's two day Symposium, co-organised by CPIB, is '**Auxin and Expansion**'.

Day One symposium speakers are Malcolm Bennett, John Boyer, Mark Estelle, Stephen Fry and Thomas Guilfoyle. Day Two workshop sessions: 'Modeling auxin response and transport pathways' and 'Integrating the auxin response machinery with plant growth and developmental pathways'.



**Recent publications:**

Lucas M, Laplaze L, Bennett MJ. (2011) Plant systems biology: network matters. **Plant, Cell & Environment**. 2011 Feb 11. doi: 10.1111/j.1365-3040.2010.02273.x. [Epub ahead of print]

Hacham Y, Holland N, Butterfield C, Ubeda-Tomas S, Bennett MJ, Chory J, Savaldi-Goldstein S. (2011) Brassinosteroid perception in the epidermis controls root meristem size. **Development** 138:839-48.

Lucas M, Swarup R, Paponov IA, Swarup K, Casimiro I, Lake D, Peret B, Zappala S, Mairhofer S, Whitworth M, Wang J, Ljung K, Marchant A, Sandberg G, Holdsworth MJ, Palme K, Pridmore T, Mooney S, Bennett MJ. (2011) Short-Root regulates primary, lateral, and adventitious root development in Arabidopsis. **Plant Physiology** 155:384-98.

Middleton AM, King JR, Bennett MJ, Owen MR (2010) Mathematical modelling of the Aux/IAA negative feedback loop. **Bulletin of Mathematical Biology** 72, 1383-1407

Qian M, Wells DM, Jones A, Becker A (2010) Finite element modelling of cell wall properties for onion epidermis using a fibre-reinforced hyperelastic model. **Journal of Structural Biology** 172, 300-4

Wells DM, Wilson MH, Bennett MJ (2010) Feeling UPBEAT about Growth: Linking ROS Gradients and Cell Proliferation. **Developmental Cell** 19, 644-6

Twycross J, Band LR, Bennett MJ, King J, Krasnogor N (2010) Stochastic and Deterministic Multiscale models for Systems Biology: an Auxin-Transport Case Study. **BMC Systems Biology** 4, 34

**Summer School 2011:**

**Mathematical modelling for biologists**

CPIB and SIGNET are hosting their fourth Summer School on 5-8 September 2011. Aimed primarily at PhD students and early career researchers, it introduces modelling and quantitative approaches and encourages experimental design which generates data suitable for modelling. For more information, visit [www.cpiib.ac.uk](http://www.cpiib.ac.uk)