

Summer School



Audience: PhD students and postdocs in experimental or computational plant biology

September 1-5, 2008
VIB Plant Systems Biology
Ghent, Belgium
www.psb.ugent.be/plantmodels

Organizers: Roeland Merks, Gerrit Beemster, and Dirk Inzé
VIB Plant Systems Biology and Ghent University

Xavier Draye
Université Catholique de Louvain-la-Neuve

Computational and Mathematical Modeling for Plant Systems Biology

Partner workshop: September 8-12 2008 in Louvain-la-Neuve, see website

Themes:

Genetic and metabolic networks

Xin-Guang Zhu
Joe Pomeroy

Single cell shape and mechanics

François Nédélec
Bela Mulder

Multicellular pattern formation

Hans Meinhardt
Verónica Grieneisen
Richard Smith

Modeling mechanics of plant tissue growth

Alain Goriely
Roeland Merks

Modeling whole plant development and evolution

Xavier Draye
Przemyslaw Prusinkiewicz

Plant science is evolving from a reductionistic view on gene function to an integrated *systems biology* approach, in which gene functions are studied in the context of the dynamic behavior of physiological, cellular, or developmental processes. Mathematical and computational modeling play a central role in this multiscale systems biology approach. This summer school will bring together a wide range of computational systems biologists, working on problems at different organizational levels, relevant to plant biologists. The course will start with phenomena occurring at the subcellular and cellular scale, including photosynthesis, cell cycle regulation and the organization of the cytoskeleton. Then it will gradually “scale up” to the tissue, organ, and whole plant levels. It will conclude with pattern formation in tissues, the mechanics of growth, and whole plant development and evolution.



Lars Mündermann
Przemysław Prusinkiewicz
Enrico Coen