IEEE Ottawa Section

Quantitative analysis of network patterns in developing organs

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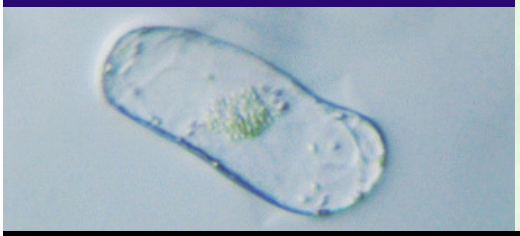
November 20, 2008

admission is free
17:30 – 19:00 pm
Mackenzie Building 4359
Carleton University

Light refreshment will be served



Network and branching structures play essential roles in transport and/or mechanical support in multicellular organisms. Several models have been proposed to explain the formation of network patterns during development, however such models have been difficult to test against experimental data due to the lack of methods for quantifying the patterns observed.
The talk will present models of vein pattern formation in plant leaves and a new method to quantify network and branching patterns from 2D image data, which may be applied to plant and animal systems.
This method should provide a way to link theoretical models to experimental observations.
Extension of the method to 3D using optical projection tomography will be discussed.

Anne-Gaëlle Rolland-Lagan received her Masters (D.E.A.) from the 'Ecole Nationale Supérieure Agronomique de Montpellier', France, in 1999. She then pursued a PhD (2003) in computer science and developmental biology at the University of East Anglia and the John Innes Centre (United Kingdom), under the supervision of Prof. Andrew Bangham and Prof. Enrico Coen.

She was awarded the Beddington Medal (2004) by the British Society for Developmental Biology, for her work on the link between growth patterns and shape asymmetry.

She then received fellowships from the Pacific Institute for the Mathematical Sciences, and the Alberta Ingenuity Fund, to pursue postdoctoral studies in computer science at the University of Calgary (2003-2006) with Prof. Przemyslaw Prusinkiewicz.

Dr. Rolland-Lagan joined the University of Ottawa in May 2006. She uses a combination of microscopy, image analysis and simulation modelling to investigate the interaction between pattern formation and growth during development.

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