

FSPM 2013

7th International Conference on

FUNCTIONAL-STRUCTURAL PLANT MODELS

9–14 June 2013, Saariselkä, Finland

Proceedings

Editors

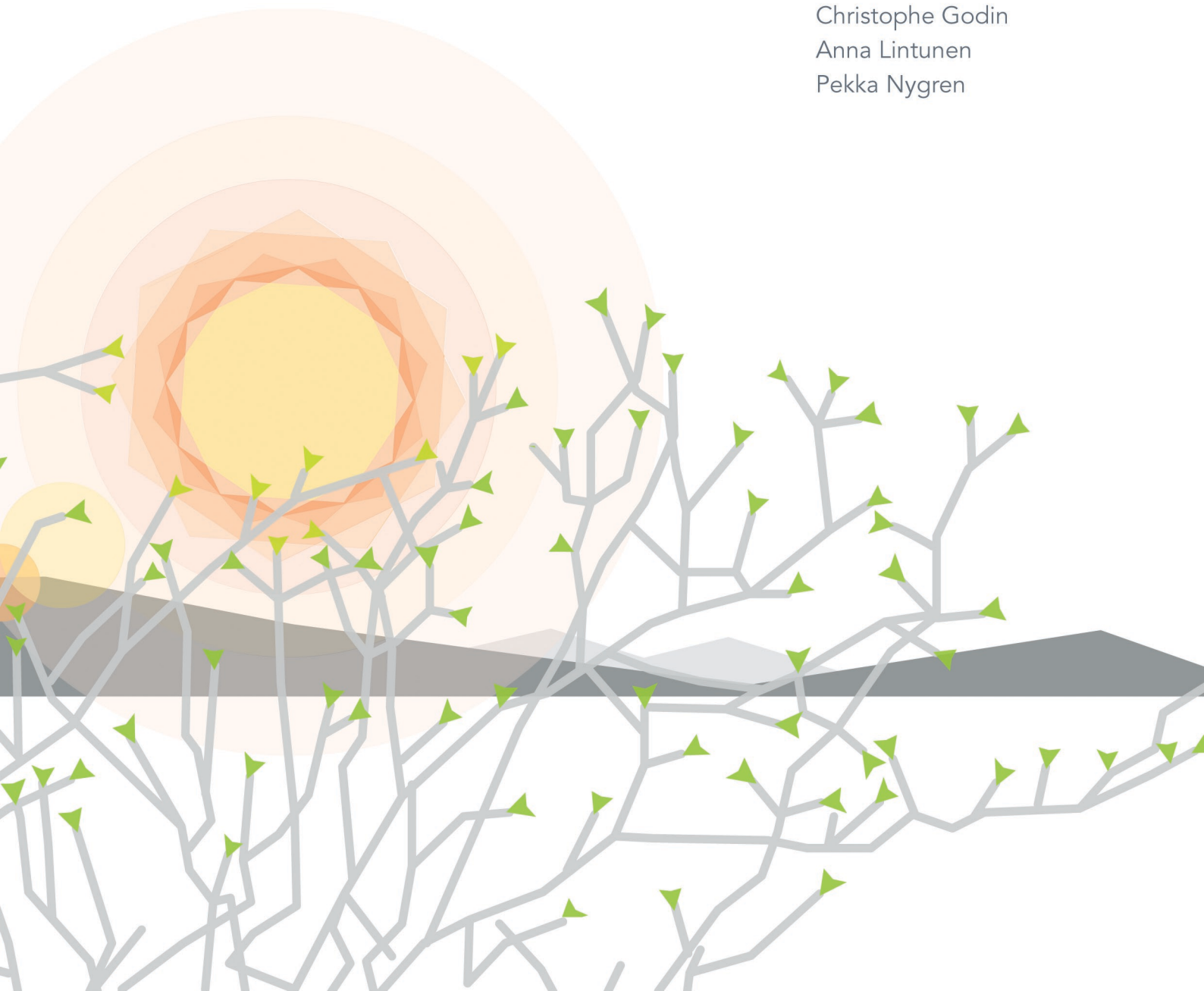
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Foreword

These are the proceedings of the 7th event in a series of workshops on functional-structural plant models (FSPMs). Functional-structural plant models describe plants as entities consisting of individual elements, describe the characteristics and behaviour of these elements, and integrate the activities of the elements for modelling the functioning of a whole plant or a plant part.

As this is already the seventh in the series of FSPM meetings and there are a solid number of contributors and participants, we decided call this meeting a conference. The chain of the FSPM workshops is as follows:

- The first workshop in Helsinki in December 1996 focused on the modelling of the distribution of growth within an individual tree, and the mathematical description and measurement of three-dimensional tree structure. Selected papers were published in a special issue of *Silva Fennica*, Vol 31, No. 3.
- The second workshop, with the same scientific profile, was held in Clermont-Ferrand, France, in October 1998. Selected papers were published in a special issue of *Annals of Forest Science*, Vol. 57, No 5/6.
- The third workshop was held in Montreal, Canada, in September, 2001. It broadened the scope of the series to include models of tree stand structure and functions.
- The fourth workshop in Montpellier, France, in June 2004 broadened the scope further to include all types of plants (woody and herbaceous), and functional-structural plant models operating at the molecular and tissue levels. Selected papers were published in a special issue of *New Phytologist*, Vol 166, No 3.
- The fifth workshop took place in Napier, New Zealand, in November 2007. The scope of this workshop was similar to the previous workshop. Selected papers were published in special issue of *Functional Plant Biology*, Vol 35, No's 9&10.
- The format of the sixth workshop in Davis, California, USA, in September 2010 was similar to the previous two workshops. An increasing number of models were applied to study practical issues in crop and plant production. Selected papers were published in a special issue of *Annals of Botany*, Vol 108, No. 6.

We received 156 abstracts for oral and poster presentations. They fitted into the topic categories of the previous meetings. The automated reconstruction plant structure on the basis of LiDAR and other data is a popular topic and cellular level models get less attention than in the two previous meetings. Number of applications of FSPMs is increasing. This time we structured the programme following criteria based on the type of modelling effort, instead of the target (e.g. roots or nutrients). We applied a number of broad categories: Methods for FSPMs (session 3); modelling and measuring plant structures (sessions 1A and 1B); modelling processes from organ to plant community level (sessions 2A and 2B); growth and development of plants (session 4A) and plant communities (session 4B); and using models for problem solving (session 5). Papers of the presentations in this conference may be submitted for publication in a 2014 special issue of *Annals of Botany*.

Risto Sievänen

Finnish Forest Research Institute

Chair, International Programme Committee

Seventh International Conference on Functional-Structural Plant Models (FSPM2013), Saariselkä, Finland, 9-14 June 2013



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