

# Development of a toolbox for modelling and simulating feedback between plant growth and biomechanics

## PERSPECTIVES

The project PlantBioM continues in the form of a MASTER internship in Computer Sciences, which would achieved the integration of the library in the software XPLO.

The prospects in the short and medium term are:

- ▶ Implementing Thomas Guillon's results in a new PlantBioM solver. An algorithm has already been developed in Java and tested for solving equations of biomechanics ;
- ▶ provide a tool for training and expertise for the management of urban trees, based on the software XPLO-PlantBioM. This tool will allow testing the impact of different types of intervention (pruning, bracing, etc ...) on the tree mechanical factor of safety .
- ▶ the above point should also be developped with the METLA (Finland) and the University of Goettingen (Germany). A thesis proposal is being drafted and should be submitted in 2011 as part of a ITN European project supported by INRA on Virtual Plants.
- ▶ the PlantBioM toolbox would be used as part of research partnerships with LIAMA, China, if the cPlant project (EU INCO-LAB) submitted in early 2011 is accepted. This research includes modeling the architectural plasticity of plants and in particular dynamic feedbacks between bending of stems and development of branching.

**Responsable :**

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