



Bruno Moulia is currently a DR1 researcher at UMR PIAF-INRAE, Clermont-Ferrand, France. Working on plant biomechanics, he is interested by the control by the physical environment of plant growth and 3D spatial development.

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**28 NOV 2023**  
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Salle 201, Bâtiment PS2, CIRAD-UMR AMAP,  
Boulevard de la Lironde

## The shaping of plant axes and crowns by tropisms and elasticity

(and the resulting balance between genetic control and environmental plasticity)

*presented by*

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### ABSTRACT

The study of the development of plant architecture has revealed a set of typical patterns of axes traits inside the crown, at the specific (architectural unit) or supra-specific (architectural model) levels. These patterns are mostly heritable. However, plant architectural development also displays a very high level of phenotypical plasticity. Understanding the bases of this duality at both the scale of the axis and that of the crown is still a challenge. Here I will show how the biophysical study of i) tropisms in axes and ii) the shaping of the crown in isolated trees is bringing new insights on this long-standing topic. I will discuss how the driving of the growth directions through the biological sensing of external physical signals can account for the interplay between developmental genetic heritability and environmental plasticity in shoot and crown shapes in land angiosperms.

### KEY WORDS:

Tree architecture; phenotypic plasticity; tropism; biomechanical and mechanobiological processes

### Invited and animated by:

Dr. Patrick HEURET (AMAP)

### Type:

Research results

### Oral language:

Français

### Language of PPT:

English

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