

## UMR 547 - Integrative physics and physiology of tree in a fluctuating environment (PIAF)

### SUPERVISORY BODIES

**INRAE**

### OTHER SUPERVISORY BODIES

Université Clermont Auvergne & associés

### UNIT MANAGER

Bruno MOULIA

### LOCATION

**Region :** Auvergne-Rhône-Alpes (Clermont-Ferrand)

**University site :** Université Clermont Auvergne

**Address :**

INRA - Site de Crouël - 5, Chemin de Beaulieu - 63039 CLERMONT-FERRAND

Our research focuses on the responses of trees to environmental factors (water, light, mechanical, mineral, thermal) determining their acclimatization or survival, taking into account architectural and functional aspects and working on the entire annual cycle. Our objectives are mainly to identify genotypes or ecotypes of trees that are more resistant to extreme climatic events, to propose orchard management methods to limit the development of pests and diseases and therefore the number of phytosanitary treatments, to propose forest management methods that improve sustainability, and to predict changes in the distribution areas of natural or cultivated species depending on climate change.

The scientific project of the UMR PIAF is carried out by 3 mixed and multidisciplinary teams with strong specificities that approach the analysis and modelling of tree functioning in response to variations in environmental factors:

- Hydraulic operation to understand if it allows resistance and/or adaptation to drought;
- Photosynthetic functioning to understand its interaction with the crown microclimate, management of carbon and/or nitrogen reserves to understand the hardening and resistance mechanisms to frost or pests..;
- Mechanoperceptive regulation of growth and architectural development to understand acclimatization and wind resilience.

**Unit website :** <https://www6.ara.inra.fr/piaf/>

**Key figures :**

50 permanent staff, including 25 researchers and teacher-researchers 10 PhD students

### DOCTORAL SCHOOL(S)

SVSAE

**DS 65 - Life sciences, health, agronomy, environment**

**Website :** <http://edsvs.univ-bpclermont.fr>

**Co-accredited institutions :** Université Blaise Pascal (Clermont-Ferrand), Université d'Auvergne

**Head :** [Monique ALRIC](#)