PIAF is a joint research unit "Integrative Physics and Physiology in Fluctuant Environment »" between INRA and University Clermont Auvergne, located at Clermont-Ferrand (France).
Our research project relates to the responses of the plants to the abiotic factors.
Website: https://www6.ara.inra.fr/piaf_eng/About/Unit

Project description
The project is a collaborative ERA-CAPS project between the MECA group of the PIAF, the group of Julia Davis (University of Cambridge, UK) and the group of Gary Stacey (University of Missouri, USA).
All known organisms use adenosine 5'-triphosphate (ATP) as an essential, cellular energy source to drive many biochemical reactions. ATP can also be released into the extracellular matrix, where it is referred to as extracellular ATP (eATP). Numerous studies showed that eATP has been implicated in a variety of plant processes, including root hair growth, gravitropism, pathogen responses and thigmotropism (Werasinghe et al., 2009). DORN1 -a lectin receptor-like kinase- has been identified as the primary eATP receptor in Arabidopsis (Choi et al., 2014 ; Cao et al. 2014). In parallel, studies showed extracellular ATP signaling is associated with an elevation of cytoplasmic calcium \([\text{Ca}^{2+}]_{\text{cyt}}\) and a DORN1-mediated activation of plasma membrane K+ and Ca2+ permeable conductances (Wang et al., 2018).
In this project, we are exploring the role that DORN1-mediated eATP signalling plays in mechanoresponses. We will determine the effect of impaired DORN1 on the stem response to wind and the root response to changes in soil impedance. The eATP-induced \([\text{Ca}^{2+}]_{\text{cyt}}\) dynamics at cellular level, will monitor in root tip and in response to mechanical stimulus using sensitive GECO \([\text{Ca}^{2+}]_{\text{cyt}}\) sensor (Waadt et al., 2017 ; Keinath et al., 2015). An original vertical stage fluorescent microscope and/or a Light Sheet Microscope will be used to follow \([\text{Ca}^{2+}]_{\text{cyt}}\) dynamics.

Qualification
We are looking for highly motivated plant biologist with good skills in cell biology, and interested in performing multi-disciplinary approaches. Successful candidates will have a PhD degree, or equivalent, in plant biology. Experience in fluorescence microscopic imaging is required and enthusiasm for engineering will be appreciated. Documented experience in root development is an advantage.
Gross monthly salary: around 2500 euro
For further information please contact: Valérie Legué, valerie.legue@uca.fr

Application
Please send a CV with publication list, a short summary of past research activities and contact information of two referees to valerie.legue@uca.fr
The complete application must be send before 30th of June 2019.