

Funded PhD position - Modelling the Physics of Organ Growth Starting Fall 2023

We are seeking a motivated candidate to join our biophysics group. The project will involve **mechanical modeling (FEM)** and **3D image analysis** of growing plant organs. A background in **Biophysics, Physics, Computer Sciences or Mathematics** is required. Biology students with a strong interest in physics and programming are encouraged to apply. Experience with modeling or programming (C++, python, matlab) are a strong asset.

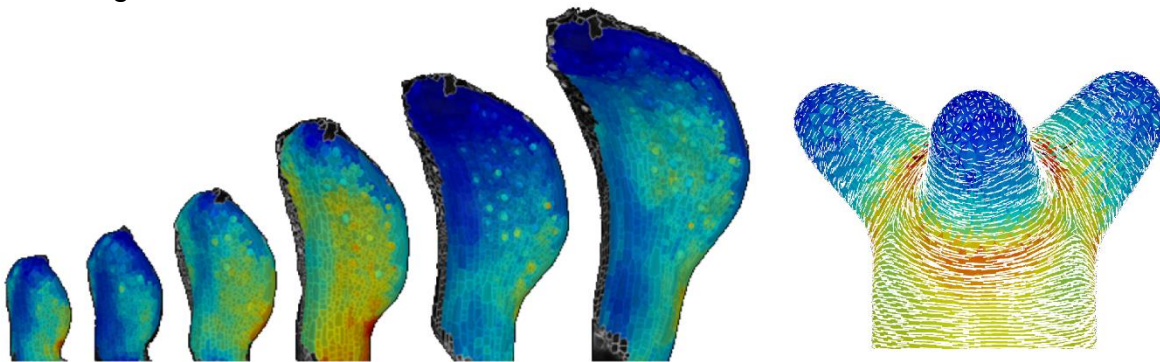


Figure from <https://doi.org/10.1242/dev.200783>

The PhD student will model organ growth to understand how biological shapes are generated from a physics perspective [1,2]. The project is based on mechanical simulations [3] and 3D image analysis [4]. The candidate will work in close collaboration with experimentalists (physicists and biologists) from the Routier lab and [Kierzkowski lab](#). Our group belongs to the Research Institute in Plant Biology ([IRBV](#)) at [University of Montreal](#).

Please send your candidature to al.routier@umontreal.ca before **April 15th, 2023**:

- **motivation letter and research interests** (1 page max)
- **CV and grade records**
- **email addresses of 2 referees.**

More information about our research: <https://routierlab.com/>

Literature:

[1] "Multiple mechanisms behind plant bending." Jonsson et al., *Nature Plants*, 1-9 (2022)

<https://doi.org/10.1038/s41477-022-01310-y>

[2] "Cellular basis of growth in plants: geometry matters." Kierzkowski & Routier-Kierzkowska, *Current Opinion in Plant Biology* 47, 56-63 (2019). <https://doi.org/10.1016/j.pbi.2018.09.008>

[3] <https://morphographx.org/morphomechanx/>

[4] "MorphoGraphX: A platform for quantifying morphogenesis in 4D" Barbier de Reuille, Routier-Kierzkowska et al., *eLife* 4, e05864 (2015). <http://dx.doi.org/10.7554/eLife.05864>.



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