Mathilde Dumond

Curriculum vitae

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Education

2014-2017 **PhD Biophysics**, RDP Lab, Lyon, France.
Supervised by Pr. Arezki Boudaoud and Dr. Olivier Hamant. From cellular variability to shape reproducibility: mechanics and morphogenesis in *Arabidopsis thaliana* sepal.

2014 **MSc BioSciences**, Ecole Normale Supérieure de Lyon, France.
Additional courses: Theoretical Computer Science (Undergraduate Computer Science); Continuum Mechanics (Undergraduate Physics).

2013 **MSc Theoretical Ecology**, UPMC, Paris, France.

2011 **BSc BioSciences**, Ecole Normale Supérieure de Lyon, France.

Research Experience

2017- **Post-Doc**, ETH, Basel, Switzerland.
Dr. Iber's lab.

2014-2017 **PhD Biophysics**, RDP Lab, Lyon, France.
Supervised by Pr. Arezki Boudaoud and Dr. Olivier Hamant. From cellular variability to shape reproducibility: mechanics and morphogenesis in *Arabidopsis thaliana* sepal.

2014 **6-months MSc Internship**, RDP Lab, Lyon, France.
Supervised by Pr. Arezki Boudaoud and Dr. Olivier Hamant. Study of the mechanical properties of *Arabidopsis thaliana* sepal.

2013 **4-months MSc Internship**, Roeder Lab, Cornell, USA.
Supervised by Dr. Adrienne Roeder and Dr. Lilan Hong. Cellular aspects of the growth of the sepal.

2013 **6-months MSc Internship**, Eawag and Hépia, Switzerland.
Supervised by Alexandre Richard ans Dr. Colombe Siegenthaler. Study of the environmental impact on restocking efficiency.

2012 **4-months MSc Internship**, RDP Lab, Lyon, France.
Supervised by Dr. Olivier Hamant. Study of the self-orginzation of cortical microtubules.

2011 **2-months BSc Internship**, LIRIS, Lyon, France.
Supervised by Dr. Carole Knibbe. *In silico* evolution of artificial organisms under several evolutionary pressures.

Publications

2017 N. Hervieux, S. Tsugawa, A. Fruleux, **M. Dumond**, A.-L. Routier-Kierzkowska, T Komatsuzaki, A. Boudaoud, J. C. Larkin, R. S. Smith, C.-B. Li & O. Hamant. Mechanical shielding of rapidly growing cells buffers growth heterogeneity and contributes to organ shape reproducibility. *Curr Biol* 27, 3468-3479.

2016 L. Hong*, **M. Dumond***, S. Tsugawa*, A. Sapala, A.-L. Routier-Kierzkowska, Y. Zhou, C. Chen, A. Kiss, M. Zhu, O. Hamant, R. S. Smith, T. Komatsuzaki, C.-B. Li, A. Boudaoud & A. H. K. Roeder. Variable cell growth yields reproducible organ development through spatiotemporal averaging. *Dev. Cell* 38, 15-32. (*: co-first authors) (Cover) Highlighted in Developmental Cell.

2016 N. Hervieux, **M. Dumond**, A. Sapala, A.-L. Routier-Kierzkowska, D. Kierzkowski, A. Roeder, R.S. Smith, A. Boudaoud & O. Hamant. A mechanical feedback restricts sepal growth and shape in Arabidopsis. *Curr Biol* 26, 1019–1028. Highlighted in Current Biology.

Awards and Scholarships

2017 EMBO long-term fellowship.

2010-2014 Ecole Normale Supérieure de Lyon 4-year scholarship (150 000€).

2011 iGEM contestant in the Lyon-INSA-ENS team: european gold medal and best part engineered award.

Conferences

2017 **2nd joint SFBD-SBCF meeting: When Development Meets Cell Biology**, Talk.
From variability to reproducibility: the role of mechanics in the robustness of organ shape

2017 **Mechanical Forces in Biology Symposium**, Poster.
From variability to reproducibility: the role of mechanics in the robustness of organ shape

2016 **LyonSysBio - Systems Biology International Conference, Lyon, France**, Talk.
How mechanical inhomogeneities and mechanical feedback impact plant morphogenesis.

2015 **8th Plant Biomechanics International Conference, Nagoya, Japan**, Talk.
The role of memory-less tissue mechanics in the robustness of morphogenesis in plants.

2014 **LyonSysBio - Systems Biology International Conference, Lyon, France**, Talk.
The role of memory-less tissue mechanics in the robustness of morphogenesis in plants.

Invited seminars

2017 **ETH, Bâle, Switzerland**, Pr. Iber.
From variability to reproducibility: the role of mechanics in the robustness of organ shape.

2017 **EMBL, Heidelberg, Germany**, Pr. Hiiragi.
From variability to reproducibility: the role of mechanics in the robustness of organ shape.

2016 **Zurich University, Switzerland**, Pr. Aegerter.
From variability to reproducibility: the role of mechanics in the robustness of organ shape.

Supervision

2017 Biologist master student, 6 months internship.

2016 Physicist undergraduate student, 2 months internship.

2015-2016 Research technician, 30% of her time.

Teaching Experience

École Normale Supérieure de Lyon, France. 2014-2017. Lecturer and TA. Undergraduate. **Modeling in Biology**, **Cell Biology**, **Introduction to Biology for Physicists**, **Molecular Biology**

Related Professionnal Skills

Modeling, Finite Elements Method, Dynamical Systems, Agent-based Modeling, *in silico* Evolution.

Programing, Python, R, Matlab, C++, freefem++.

Atomic Force Microsopy, Imaging and mechanical properties.

Live Imaging, Confocal Microscopy.

Image Processing, ImageJ, MorphoGraphX.

Molecular Biology.

Scientific Outreach

2014-2016 Contribution in 1 or 2 days events: 2 Science Festivals, European Researchers Night, Rendez-vous aux Jardins.

Languages

French, mother tongue.

English, fluent.

German, basic.