

MERLE MÉLODY

3rd-year PhD student in theoretical biophysics at LPTMC lab

✉ melody.merle@gmail.com

in www.linkedin.com/in/melodymerle



RESEARCH

2016-2019 | PhD: Modeling early stage development of *Drosophila* using a Ising-based model

Laboratoire de Physique Théorique et de la Matière Condensée (LPTMC), Sorbonne Université, Paris

Supervisors: L.Messio, J.Mozziconacci

Programming in Matlab, C++, use of Bash, Git, Latex - Markov Chain Monte Carlo algorithm - Wang-Landau algorithm - Fitting by function optimization - Data Analysis

Publications:

M.Merle, L.Messio, J.Mozziconacci

Turing like patterns in an asymmetric dynamic Ising model ArXiv 1903.08506 (2019)

Collaboration:

Aug-Dec 2017 | Information in the gap genes expression at early stage of *Drosophila* development in different *bcd*-dosage mutant lines Thomas Gregor Lab, Princeton University, NJ, USA (N.Harousch, T.Gregor)

Drosophila culture and embryos preparation - Immunofluorescence - Confocal microscopy - Image analysis

Internships:

- **Jan-Apr 2016 | Effect of the presence of pulmonary surfactant (Curosurf®) on interactions between nanoparticles and epithelial lung cells** MSC, Paris VI (F.Mousseau, J.-F.Berret)
Human epithelial lung cells (A549) culture in different media - Confocal microscopy - CryoTEM
- **May-July 2015 | Aging in the micro-algae *C. Reinhardtii*** LCMD, ESPCI (E.Duliège, J.Baudry)
C.Reinhardtii and *E.Coli* cultures - Time-lapse confocal imaging - Image analysis - DNA fluorescent staining
- **July-Dec 2014 | Industrial R&D internship: Development of a characterization method of diffusive properties for cosmetic pigments** BASF Personal Care and Nutrition, Düsseldorf, Germany (C.Neumann)
- **July 2013 | Impact of pressure on cancer cells spheroids** MMBM, Curie Institute (S.Monnier, G.Cappello)
Cancer cells spheroids preparation - Thin cryosection and mounting - Immunofluorescence of extracellular proteins

EDUCATION

2015-2016 | M2 SBCP Paris VI-VII-XI

Biological Systems and Physical Concepts

Including a 2-months course on Molecular Genetics and Epigenetics at the Pasteur Institute

2012-2016 | ESPCI Paris

Class of 2012 - Biotechnologies Major

Captain of the volleyball team

Junior Enterprise: follow-up of studies

Member of the team in charge of the school cafeteria

2010-2012 | Prep classes PCSI-PC*

Lycée Joffre, Montpellier

TEACHING

Teaching assistant - Sorbonne Université | 2017-2019

Lab classes and oral exams for Energy and Entropy classes

Teaching assistant - Lycée Janson de Sailly | 2015-2016

Oral preparation for the oral exams in chemistry for prep classes students

Private tutor - Highschool level | 2012-2014

LANGUAGES

French: mothertongue, English: fluent