

# Curriculum Vitae

Laure Morelle

December 23, 2023



**Surname, First name:** Morelle, Laure

**Date of birth:** July 6, 1998

**Nationality:** French

**E-mail:** laure.morelle at lirmm.fr

---

## EDUCATION

2022 - NOW **PhD, AIGCo team, LIRMM, Montpellier, France.**  
with Ignasi Sau and Dimitrios Thilikos.

2021 - 2022 **MPRI (Parisian Master of Research in Computer Science), Paris, France.**  
Courses in Algorithmic, Combinatorics and Graph theory.  
Master's degree in Theoretical Computer Science, equivalent to M2.

2018 - 2022 **Ecole Polytechnique, Palaiseau, France.**  
Courses in Mathematics, Physics and Computer Science, specialization in Theoretical Computer Science.  
Master's degree in Engineering, equivalent to M2.

2016 - 2018 **Classes préparatoires, Lycée Hoche, Versailles, France.**  
A two-year intensive university-level preparation in maths and physics to prepare for nationwide exams to enter French's "Grandes Ecoles", equivalent to L2.

## RESEARCH EXPERIENCE

- 09/22 - 08/25 **PhD, AIGCo team, LIRMM, Montpellier, France.**  
Optimizing the Efficiency of Meta-Algorithmic Techniques for Graph Modification Problems, with Ignasi Sau and Dimitrios Thilikos.
- 03/22 - 08/22 **Internship in the AIGCo team, LIRMM, Montpellier, France.**  
Research on graph modification problems, with Ignasi Sau and Dimitrios M. Thilikos.
- 03/21 - 07/21 **Internship in the TALGO team, ENS Paris, Paris, France.**  
Research on the approximate ratio for multiflow/minimum-multicut problem on particular graph classes, with Chien-Chung Huang.  
Research internship prize of Ecole polytechnique.
- 06/20 - 08/20 **Internship at DXOMARK, Boulogne-Billancourt, France.**  
Research and study of neural networks to evaluate noise on images and enhance the quality of the image analysis.
- 

## RESEARCH INTERESTS

Graph theory and algorithms, mainly FPT algorithms and approximation algorithms.

---

## PUBLICATIONS

LARS JAFFKE, LAURE MORELLE, IGNASI SAU, AND DIMITRIOS M. THILIKOS.

**Dynamic Programming on Bipartite Tree Decompositions.**

In *Proc. of the 18th International Symposium on Parameterized and Exact Computation (IPEC)*, volume 285 of *LIPICs*, pages 26:1–26:22, **2023**.

doi:10.4230/LIPICs.IPEC.2023.26.

Arxiv version: doi:10.48550/arXiv.2309.07754.

GAÉTAN BERTHE, YOANN COUDERT-OSMONT AND ALEXANDER DOBLER, LAURE MORELLE, AMADEUS REINALD, AND MATHIS ROCTON.

**PACE Solver Description: Touiowidth.**

In *Proc. of the 18th International Symposium on Parameterized and Exact Computation (IPEC)*, volume 285 of *LIPICs*, pages 38:1–38:4, **2023**.

doi:10.4230/LIPICs.IPEC.2023.38.

LAURE MORELLE, IGNASI SAU, GIANNOS STAMOULIS, AND DIMITRIOS M. THILIKOS.

**Faster parameterized algorithms for modification problems to minor-closed classes.**

In *Proc. of the 50th International Colloquium on Automata, Languages, and Programming (ICALP)*, volume 261 of *LIPICs*, pages 93:1–93:19, **2023**.

doi:10.4230/LIPICs.ICALP.2023.93.

Arxiv version: doi:10.48550/arXiv.2210.02167.

---

## TEACHING ACTIVITY

During my PhD, I am a *chargé de TD* (teaching assistant) at Université de Montpellier.

2023 - 2024 **Utilisation des systèmes informatiques (Use of computer systems).**

Bachelor in Computer Science, 1st year - 32h.

**Algorithmique 2 - Arbres, tas et parcours de graphes (Trees, heaps and graph search).**

Bachelor in Computer Science, 1st year - 32h.

2022 - 2023 **Algorithmique 1 - Introduction à l'algorithmique (Introduction to algorithms).**

Bachelor in Computer Science, 1st year - 32h.

**Algorithmique 2 - Arbres, tas et parcours de graphes (Trees, heaps and graph search).**

Bachelor in Computer Science, 1st year - 32h.

---

## CHALLENGES

**Parameterized Algorithms and Computational Experiments (PACE) Challenge 2023**

Implement an efficient algorithm to compute the twinwidth of a graph.

Exact track, 3rd place.

---

## LANGUAGE

- **French:** native.
  - **English:** proficient.
  - **German:** advanced.
  - **Chinese:** beginner.
- 

## INTERESTS AND ACTIVITIES

- **Sport:** Badminton, ultimate (Frisbee), sailing.
- **Hobbies:** Reading (fantasy, mangas, webnovels), hiking, travelling, jigsaw puzzle, origami.