

# Matthieu PIQUEREZ

## Curriculum Vitae

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Postdoctoral researcher at Inria

### Academic information

- Since 2022 **Postdoctoral researcher (starting research position since 2024) in computer science and in mathematics with Assia Mahboubi : development of a library to do formalized algebraic homology in Coq / tropical Hodge theory**, Nantes Université, Nantes, Laboratoire des sciences du numérique de Nantes (LS2N), Inria Rennes.
- 2017–2021 **PhD student in mathematics on tropical Hodge theory under the supervision of Omid Amini**, École polytechnique, Palaiseau, Centre Mathématique Laurent Schwartz.
- 2017 **Master thesis in mathematics: “A generalization of Symanzik polynomials”, under the supervision of Omid Amini**, ENS, Paris, Département Mathématiques et Applications.
- 2014–2018 **Student at ENS Paris.**
- 2012–2014 **Classes préparatoires MPSI/MP\***, Lycée Louis-le-Grand, Paris.

### Articles

- 2024 Avec E. Aksnes, O. Amini et K. Shaw. *Cohomologically tropical varieties*. Prépublication arXiv:2307.02945, accepted (after minor changes) in *Journal of the Institute of Mathematics of Jussieu*
- 2024 with Assia Mahboubi. *A first order theory of diagram chasing*. In 32nd EACSL Annual Conference on Computer Science Logic 2024 (CSL'24), Naples (Université Federico II), Italy, 2024
- 2023 With Omid Amini. *Hodge theory for tropical fans*. Preprint arXiv:2310.15367
- 2021 PhD thesis. *Tropical Hodge theory and applications*. Available on <https://www.theses.fr/2021IPPAX073>.
- 2021 with Omid Amini. *Homology of tropical fans*. Preprint arXiv:2105.01504
- 2020 with Omid Amini. *Tropical Clemens-Schmid sequence and existence of tropical cycles with a given cohomology class*. Preprint arXiv:2012.13142
- 2020 with Omid Amini. *Hodge theory for tropical varieties*. Preprint arXiv:2007.07826
- 2019 *A multidimensional generalization of Symanzik polynomials*. Preprint arXiv:1901.09797

### Mathematical contests

- 2017 Concours SMF-junior, ranked second.
- 2012 International mathematical olympiad, bronze medal.
- 2012 Concours Général de Mathématiques, first national prize.

### Languages

- French Mother tongue.
- English Intermediate.
- Esperanto Intermediate.

### Computer skills

Coq, C, Python, Sage,  $\LaTeX$ , OCaml, web development.

## Experiences

- 2023– Volunteer in the Fédération française de jeux mathématiques (mathematical contests writing, etc.).
- 2022– Volunteer in MLC44 (local currency).
- 2022 Tutorial assistant in Nantes université.
- 2018–2021 Tutorial assistant in the international Bachelor of École polytechnique.
- 2019–2020 Coorganizer of the seminar Combinatoire et Interactions at the Institut Henri Poincaré.
- 2016–2020 In charge of the website Mathmosphère: online mathematical courses for highschool students.
- 2016–2017 Oral examiner in classes préparatoires.
- 2013–2016 In charge of young scouts (between 8 and 12 years old).
- 2013–2020 Volunteer in Animath organization, which encourage young people doing mathematics.