

# Nathanaël Hassler

Nationality : French  
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## EDUCATION

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### Université de Bourgogne

Second year of PhD in the LIB (Laboratoire d'Informatique de Bourgogne), under the direction of Jean-Luc Baril, Sergey Kirgizov and Vincent Vajnovszki.

Dijon  
Current

### Sorbonne Université

Master's Degree of Fundamental Mathematics  
*Results: Grade: 16.93/20 (with highest honor).*

Paris  
2022–2023

### École Normale Supérieure (ENS) de Rennes

Bachelor's Degree, Master's degree of Mathematics (preparation of the Agrégation, see below) and Master's Degree of Fundamental Mathematics  
*Bachelor's results: Grade: 18.208/20 (with highest honor), Ranking: 2/82.*  
*Agrégation-Master's results: Grade: 16.675/20 (with highest honor)*

Rennes  
2019–2023

Agrégation externe de Mathématiques (2022) *Ranking: 21*

*This is a national exam open only to holders of a master's degree, and it is crucial for people aspiring to teach in higher education. In the 2022 session there were 1411 present candidates.*

### Lycée La Martinière Monplaisir

Two-year intensive program preparing for the national competitive exam for entry to engineering schools  
*Results in mathematics: I was in the top 4 of my group (of 33 to 42 students) each semester.*

Lyon  
2016–2019

## EXPERIENCE

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### Combinatorics and Number Theory

Internship in the Number Theory and Combinatorics Group of the Institut Camille Jordan.

Lyon  
Summer 2020

- Work placement mentor : Boris Adamczewski.
- I studied Adamczewski's work related to the link between the transcendence of a number and the properties of its expansion in base  $b$  or its continued fraction representation.

### Maximal sum-free sets in abelian groups

Internship in the Combinatorics Group of the University of Birmingham.

Birmingham  
Summer 2021

- Work placement mentor : Andrew Treglown.
- With Andrew Treglown we used tools from graph theory to show multiple results about the counting of maximal sum-free sets in abelian groups.

### Half-factorial sets

Internship in the Algebra, Geometry and Combinatorics Group of the LAGA in Université Paris 8.

Paris  
Summer 2023

- Work placement mentor : Wolfgang Schmid.
- I studied a combinatorial problem related to half-factorial sets and its connections to graph theory.

## PUBLICATION

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- J.-L. Baril, N. Hassler, S. Kirgizov and J.L. Ramírez, **Grand Zigzag Knight's Paths**, *Enumerative Combinatorics and Applications*, ECA 5:1 (2025) Article #S2R6.
- N. Hassler, V. Vajnovszki and D. Wong, **Greedy Gray Codes for Some Restricted Classes of Binary Words**, *Proceedings GASCom 2024*, EPTCS 403, (2024), pp. 108-112.
- N. Hassler and A. Treglown, **On Maximal sum-free sets in abelian groups**, *The Electronic Journal of Combinatorics* 29(2) (2022), #P2.32

## EXTRACURRICULAR ACTIVITIES

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- Volunteer at the TFJM<sup>2</sup> event (Tournoi Français des Jeunes Mathématiciens et Mathématiciennes) 2020 & 2021  
*The TFJM<sup>2</sup> is a tournament opposing groups of high school students who are working on challenging mathematic problems. I took part in this event as a juror.*
- Volunteer at the RJM event (Rendez-vous des Jeunes Mathématiciennes) 2019  
*The RJM is a national event which has the goal to raise high school female student's awareness of what is the research in mathematics and to encourage them to pursue such careers. I took part into the organisation of this event in the ENS in Rennes and I supervised a research work group.*

## MISCELLANEOUS

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Driving licence : Since 2018

### Hobbies :

- Sports  
*Football, Basketball, Street Workout*
- Magic  
*Activities in restaurants and festivals*
- Mathematics
- Geography