Tübingen, Germany
Born on Oct. 31, 1997, in Aubergenville (France).
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Yoann Le Hénaff

Numerical analysis, Applied mathematics, PDE, Programming

Employment

2024–2026 **Post-doctoral researcher**, *University of Tübingen (Germany)*
Supervised by Christian Lubich. Member of the SFB-funded research group TRR 352 *Mathematics of Many-Body Quantum Systems and Their Collective Phenomena*.

Education

2021–2024 **PhD in mathematics**, *University of Rennes (France)*, defended on 12 June 2024
Title: *Modulated particle methods and high orders*
- Theoretical and numerical study of a particle scheme for the approximation of the solution to the Vlasov-Poisson equation.
- Study of a modulated particle method for the cubic nonlinear Schrödinger equation.
- Study of the spectral concentration problem, and of a robust approximation algorithm overcoming the numerical instabilities.

Supervised by Erwan Faou and Nicolas Crouseilles (University of Rennes, INRIA Brittany.).
Reviewers: Martin Campos Pinto, Bruno Després.
Jury: Virgine Ehrlacher (president), Katharina Schratz, Pierre Vernaz-Gris.

2019–2021 **Master's degree in fundamental mathematics**, *University of Rennes (France)*

2019 **Semester of study**, *Korean Advanced Institute of Science and Technology (South Korea)*

2015–2021 **Engineering degree in Applied mathematics**, *INSA Rennes (France)*

Languages

French (native language)**, English** (C1 level, fluent)

Spanish (B1 level)**, German** (A2 level)**.**

Teaching

2026 **Supervised a seminar on numerical methods**, *University of Tübingen (Germany)*
20h at bachelor level. In English.

Supervised a seminar on unconstrained nonlinear optimization, *University of Tübingen (Germany)*
20h at graduate level. In English.

2025 **Lecture on numerical methods**, *University of Tübingen (Germany)*
24h at graduate level. In English.

2021–2024 **Mathematics tutorial sessions for undergraduates**, *University of Rennes (France)*
+100h at undergraduate level. In French.

Communications and public outreach

2023 **Math C2+**, *Rennes (France)*
Public outreach about research in mathematics for an audience made of high-school students.

Preprints/Works in progress

[1] Erwan Faou and Yoann Le Hénaff. *A generalized spectral concentration problem and the varying masks algorithm*, October 2024.

[2] Yoann Le Hénaff, Christian Lubich, Peter Pickl. *Numerical Bogoliubov approximation for bosonic quantum dynamics (WIP)*.

Publications

[1] Erwan Faou, Yoann Le Hénaff, and Pierre Raphaël. *Modulated Solitons Algorithms for Nonlinear Schrödinger Equations*. WORLD SCIENTIFIC, September 2025.

[2] Mohammed Boujoudar, Emmanuel Franck, Philippe Hoch, Clément Lasuen, Yoann Le Hénaff, and Paul Paragot. *Cemracs project: A composite finite volume scheme for the Euler equations with source term on unstructured meshes*. *ESAIM: Proceedings and Surveys*, 77:123–144, 2024.

[3] Yoann Le Hénaff. *Grid-free weighted particle method applied to the Vlasov–Poisson equation*. *Numerische Mathematik*, 155(3-4):289–344, December 2023.

Talks

2026 **Annual meeting of the international association of applied mathematics and mechanics**, Stuttgart Germany

Seminar, *I2M*, Marseille (France)

2025 **Working group (*Arbeitsgemeinschaft*) on analysis of many-body quantum systems**, Oberwolfach (Germany)

"Maths Applis" seminar, *LMJL*, Nantes (France)

Seminar of the numerical analysis group, *University of Tübingen*, Tübingen Germany

2024 **PhD students' day**, *IRMAR*, Rennes (France)

Workshop on molecular dynamics, *LAREMA*, Angers (France)

2023 **INRIA MINGuS team meeting**, *INRIA Brittany*, Rennes (France)

ANR KEN meeting, *LMJL*, Nantes (France)

PhD seminar, *IRMAR*, Rennes (France)

Congress of young researchers in mathematics and their applications, Gif-sur-Yvette (France)

2022 **CEMRACS**, Marseille (France)

Events attended without giving a talk

2025 **SFB TRR 352 Junior meeting**, Stuttgart (Germany)

SFB TRR 352 meeting, Farchant (Germany)

2022 **Summer schol on transport problems**, Marseille (France)

Summer school on kinetic equations, Dobbiaco (Italy)