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Date of birth : 13/04/1988  
Nationality : French  
Married, 1 Child  
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## Employment

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2019– **Postdoctoral position** in the ANR (National Research Agency) project NonStops  
Laboratoire de mathématiques AGM, Université de Cergy-Pontoise, France  
2016–2019 **Postdoctoral position** in the group of Prof. Gian Michele Graf  
Institute for Theoretical Physics, ETH Zürich, Switzerland  
2015–2016 **Assegno di ricerca** Postdoctoral position with Prof. Gianluca Panati  
Dipartimento di matematica, Università La Sapienza, Rome, Italie

## Education

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2012–2015 **Ph.D in Physics (01/12/15)** *with highest honors*  
supervised by Krzysztof Gawędzki, Laboratoire de Physique, ENS de Lyon  
“Three applications of a geometric approach to conformal field theory”  
Jury: D. Bernard, A. Cappelli, P. Degiovanni, B. Doyon, J. M. Maillet, K. Gawędzki  
2009–2012 **Bachelor and Master in physics** *with highest honors* ENS de Lyon, France  
2009 **Admitted to Ecole Normale Supérieure de Lyon** MPI competitive exam  
2006–2009 **French “Classe préparatoires” MPSI/MP\*** Lycée Louis le Grand, Paris

## Teaching experience

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2017–2019 **Master students** 6-month project, Physics Department, ETH Zürich  
*B. Lapierre : Heating and Dynamics in Floquet Conformal Field Theory (2019)*  
*E. La Valle: Time-reversal invariant Floquet topological insulators (2018)*  
*G. Huang: Floquet dynamics of boundary conformal field theory (2017)*  
2016–2019 **Proseminar** Student tutoring for comprehension and presentation of scientific articles  
(2 to 4 students per year, Bachelor and Master, Physics department, ETH Zürich)  
2013–2015 **Teaching duty (192 hours)** Physics Department, ENS de Lyon  
**Exercise classes** Bachelor 3rd and Master 1st year  
*Mathematical methods for physics (B3 and M1), Symmetries and Lie Groups (M1),*  
*Analytical Mechanics (B3), Special Relativity (B3)*  
**Oral interrogations** Classe Passerelle pour l’Enseignement Supérieur  
**Preparation to “Agregation”** Rehearsal written exams for physics teaching  
position’s contest  
2010–2013 **Oral interrogations** Lycée La Martinière Monplaisir, Lyon  
2009–2010 **Volunteer work:** tutoring underprivileged high school students Lycée Jacques Breel

## Languages

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French: mother tongue  
German: basics

English: fluent

Italian: fluent

## Academic activities

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- sep. 2018     **Workshop organization** *Recent progress in mathematics of topological insulators*  
(ETH Zürich, 18 international speakers, 30 participants, budget: 35'000 CHF)
- 2017–     **Referee** Peer-reviewing for the journals:  
*Physical Review X, Physical Review B, Physical Review Research (APS), Journal of  
Physics: Materials (IOPsciences), The European Physical Journal B (Springer)  
Journal of Mathematical Physics (AIP), Mathematical Physics, Analysis and Geometry  
(Springer), Journal of Geometry and Physics (Elsevier), MathSciNet Mathematical  
Reviews (AMS)*
- 2016–2017     **Postdoc representative** Institute for theoretical physics, ETH Zürich
- juil. 2016     **Support staff:** international conference StatPhys2016 (ENS de Lyon)
- 2012–2015     **Ph.D Seminar** Establishment and organization of a bi-monthly seminar for theoretical  
physics Ph.D students (ENS de Lyon)

## Talks: international conferences

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- 2020\*     Solid Math 2020     *École des Ponts ParisTech* (invited, forthcoming)
- 2020\*     Mathematical Aspects of Materials Science     *SIAM MS20, Bilbao* (invited, forthcoming)
- 2020\*     Mathematics of topological insulators *Columbia University, New York* (invited, forthcoming)
- 2019     Workshop Disorder and Chaos     *Polygone CNRS, Grenoble* (invited)
- 2019     Advanced Theoretical and Numerical Methods for waves in structured Media  
*Université d'Aix-Marseille* (invited)
- 2019     Topology, Photonics and beyond     *Alfried Krupp Wissenschaftskolleg Greifswald* (invited)
- 2019     Mathematical Physics at the Crossings     *VirginiaTech, Blacksburg* (invited)
- 2018     Solid Math 2018     *McGill University, Montréal* (invited)
- 2018     XIXth International Congress Mathematical Physics, Young Res. Symp.     *Montréal*
- 2018     Mathematical challenges in quantum mechanics     *Sapienza Università di Roma*
- 2017     From Field Theory to Non-Equilibrium     *Université de Nice* (invited)
- 2016     Trieste quantum days     *SISSA, Trieste* (invited)
- 2016     Mathematical challenges in quantum mechanics     *Bressanone*
- 2013     Workshop on field theories with defects     *Universität Hamburg*

## Talks: institute seminars

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- 2019     ANR NonStops Meeting, Université de Cergy Pontoise
- 2019     Stochastic Problems in Mathematical Physics and Economics, Université Paris-Diderot
- 2018     Department Mathematik, Friedrich-Alexander-Universität Erlangen-Nürnberg
- 2018     Institut Fourier, Université Grenoble Alpes
- 2018     Centre de recherche en mathématiques de la décision, Université Paris Dauphine
- 2018     Institut Camille Jordan, Université de Lyon
- 2018     Laboratoire J.A. Dieudonné, Université de Nice
- 2018     Laboratoire de physique théorique de Toulouse
- 2018     Laboratoire de physique théorique et modèles statistiques, Université Paris-Saclay
- 2017     Fachbereich Mathematik, Tübingen Universität
- 2017     Laboratoire de physique de l'ENS de Lyon
- 2016     Institut de physique théorique, ETH Zürich
- 2014     Dipartimento di matematica, Università La Sapienza, Rome

## Computer programming skills

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Mathematica, Python, Matlab, HTML, PHP

## Publications under review (preprint)

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- [14] **Emergent Black Hole Dynamics in Critical Floquet Systems**  
with B. LAPIERRE, K. CHOO, A. TIWARI, T. NEUPERT AND R. CHITRA [arXiv:1909.08618](#)
- [13] **Anomalous bulk-edge correspondence in continuous media**  
with P. DELPLACE AND A. VENAILLE [arXiv:1902:10050](#)

## Publications in international peer-reviewed journals

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- [12] **Eigenvalue crossings in Floquet topological systems**  
with K. GOMI [Letters in Mathematical Physics \(2019, online first\)](#)
- [11] **A bulk-interface correspondence for equatorial waves**  
with P. DELPLACE AND A. VENAILLE [Journal of Fluid Mechanics, 868, R2 \(2019\)](#)
- [10] **Strongly Disordered Floquet Topological Systems**  
with J. SHAPIRO [Annales Henri Poincaré \(2019\)](#)
- [9] **Effective vacua for Floquet topological phases: A numerical perspective on switch-function formalism**  
without co-author [Physical Review B 97, 195312 \(2018\)](#)
- [8] **Spin Conductance and Spin Conductivity in Topological Insulators: Analysis of Kubo-like terms**  
with G. MARCELLI and G. PANATI [Annales Henri Poincaré \(2019\)](#)
- [7] **Bulk-Edge correspondence for two-dimensional Floquet topological insulators**  
with G. M. GRAF (2018) [Annales Henri Poincaré, 19\(3\), 709-741](#)
- [6] **Phase rotation symmetry and the topology of oriented scattering networks**  
with P. DELPLACE and M. FRUCHART (2017) [Physical Review B 95, 205413](#)
- [5] **Gauge-theoretic invariants for topological insulators: A bridge between Berry, Wess-Zumino, and Fu-Kane-Mele**  
with D. MONACO (2017) [Letters in Mathematical Physics 107\(7\) 1315–1343 115008](#)
- [4] **Topological edge states in two-gap unitary systems: A transfer matrix approach**  
with P. DELPLACE (2015) [New Journal of Physics 17 115008](#)
- [3] **Construction and properties of a topological index for periodically driven time-reversal invariant 2D crystals**  
with D. CARPENTIER, P. DELPLACE, M. FRUCHART and K. GAWĘDZKI (2015) [Nuclear Physics B: 896 C, 779-834](#)
- [2] **Nonequilibrium transport through quantum-wire junctions and boundary defects for free massless bosonic fields**  
with K. GAWĘDZKI (2015) [Nuclear Physics B : 896 C, 138-199](#)
- [1] **Global gauge anomalies in coset models of conformal field theory**  
with P. DE FROMONT and K. GAWĘDZKI (2014) [Communications in Mathematical Physics 328,3 1371–1400](#)

## Popularization publication

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- [A] **De la lumière à sens unique. Métamatériaux topologiques et guides d'onde unidirectionnels**  
with M. FRUCHART (2017, in French) Popularization paper for [le Rayon](#), on-line journal of the French physical society.