

Nicolas MARQUE

PERSONAL DATA

PLACE AND DATE OF BIRTH: Toulouse, France | 22 March 1993
ADDRESS: Potsdamer Strasse 182, 14469, Potsdam, Germany
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EDUCATION

DEC 9 2019	PhD defense: obtention of the diploma of <i>docteur de l'Université de Paris</i> Reviewers: Prof. Jan METZGER, Prof. Andrea MONDINO Advisor: Dr. Paul LAURAIN President of the Jury: Prof. Laurent HAUSWIRTH Jury: Dr. Ilaria MONDELLO Prof. Frédéric HÉLEIN Prof. Olivier DRUET Dr. Yann BERNARD
SEPT 2016-Dec 2019	PhD at Paris Diderot Research team Geometry and Dynamics Advisor: Prof. Paul LAURAIN
SEPT 2015	Master's degree in Advanced Mathematics for research at ENS , Lyon Analysis of PDEs and Geometry with courses: <i>Minimal Surfaces</i> by Olivier Druet <i>Homogeneization</i> by Andro Mikelic <i>Symplectic Geometry</i> by Jean-Claude Sikorav <i>Optimal Transport</i> by Ivan Gentil <i>Evolution equations and boundaries</i> by Sylvie Benzoni Final Grade : 17/20 with mention : Very Good
SEPT 2014	Master's degree in Mathematics for teaching at ENS , Lyon Preparation for the french national competitive exam, <i>l'Agrégation</i> Final Results : 8 th nationwide
SEPT 2013	Master's degree in Mathematics at ENS , Lyon, 1 st year Final Grade : 16/20 with mention : Very Good
SEPT 2012	Bachelor's degree in Mathematics at ENS , Lyon Final Grade : 15/20 with mention : Good
SEPT 2010-AUG 2012	Preparation for the French competitive exam for the admittance to French <i>Grandes Ecoles</i> at Lycée Pierre de Fermat , Toulouse Final Results : Admission to ENS of Lyon
SEPT 2007-AUG 2010	High School education at Lycée Saint Exupéry , Blagnac Final Grade : 19.75/20 with <i>Summa Cum Laude</i>

PROFESSIONAL SITUATION

APR 2020-TODAY	Temporary employee at POTSDAM UNIVERSITÄT. Post-doc supervisor: Jan Metzger
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WORK EXPERIENCE

SEPT 2019-MARCH 2020	Teaching assistant at DIDEROT UNIVERSITY, Paris
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SEPT 2016-DEC 2019	PhD under the supervision of Paul Laurain : <i>Moduli spaces of Willmore immersions</i> , teaching assistant for Bachelor students. Financed through CDSN
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MARCH 2016-JULY 2016	Intern at DIDEROT UNIVERSITY, Paris, under the supervision of Paul Laurain
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MAY 2014-JULY 2014	Intern at DIDEROT UNIVERSITY, Paris, under the supervision of Paul Laurain
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MAY 2013-JULY 2013	Intern at PAUL SABATIER UNIVERSITY, Toulouse, under the supervision of Dan Popovici
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TEACHING ACTIVITIES :

AT POTSDAM UNIVERSITY

SCHED APR-JUL 2021	Lecturer: Mean curvature problems in euclidean space Advanced lectures for Master students
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NOV 2020-FEB 2021	Teaching assistant : Analysis I Tutoring for Bachelor Students
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NOV 2020-FEB 2021	Teaching assistant : PDE theory I Tutoring for Masters Students
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APR 2020-JULY 2020	Teaching assistant : PDE theory II Tutoring for Masters Students
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AT PARIS UNIVERSITY

SEPT 2019-OCT 2019	Courses and tutoring for MRM1 Mathematics et Logic for first year students
JAN 2018-MAY 2018	"Colles" in MM4 Analysis and Algebra for second year students
SEPT-DEC 2017, 2018, JAN-AVR 2020	Tutoring in measure theory and integration Measure theory for third year students
JAN 2017-MAY 2017	Tutoring in MM2 Analysis for first year students
SEPT 2016-DEC 2016, SEPT 2018-DEC 2018	Tutoring in RM1 Logic for first year students

MATHEMATIC DIFFUSION

OCT 2016-2019	Participation to the <i>Fête de la Science</i> Yearly event of mathematical diffusion for elementary and secondary students, and more broadly speaking to any person outside academia
DEC 2019	Supervision of interns at Paris University
NOV 17-19, MARCH 18-19	Participation to the <i>rencontres master-doctorants</i> Talks and discussions between master and PhD students to incite interested students to pursue a research career

ADMINISTRATIVE ACTIVITIES

EDITORIAL ACTIVITIES

2019-2020	Reviewer for MATHEMATISCHE ZEITSCHRIFT
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EVENT ORGANIZATION

APR 2020-JULY 2020	Co-organization of the <i>Bourbakonfs</i> Organization of a weekly informal virtual seminar for PhD students of Paris University in order to maintain academic life despite the lockdowns
NOV 2019	Co-organization of the <i>rencontre master-doctorants</i> Organization of an informal seminar for master students, followed by a meal and discussions to incite interested students to pursue a research career
SEPT 2018-APR 2020	Co-organization of the <i>Bourbakettes</i> Organization of a weekly informal seminar for PhD students of Paris University

ADMINISTRATIVE REUNIONS

DÉC 2018	Participation to the ANR day Presentation by a talk of the <i>ANR BLADE</i> project
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RESEARCH ACTIVITIES

CONFERENCES

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| FEB 2021 | Speaker at the <i>1st Geometric Analysis Festival</i> (talk available online)
Title of the talk: <i>Willmore energy, Willmore immersions, Willmore bubbling</i> |
| FEB 2021 | Speaker at the <i>International Meeting on Lorentzian Geometry</i> (mini talk, available online)
Title of the talk: <i>Conformal Gauss map and applications</i> |
| JULY 2019 | Invited speaker to <i>1st Joint Meeting Brazil-France in Mathematics</i> , Rio de Janeiro
Title of the talk: <i>An exploration of Willmore bubbling</i> |

SEMINARS

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| FEB 2020 | Invited speaker to the <i>Geometry seminar</i> , Melbourne
Title of the talk: <i>Geometry of the conformal Gauss map</i> |
| NOV 2019 | Invited speaker to the <i>Differential Geometry seminar</i> , Potsdam
Title of the talk: <i>An exploration of Willmore bubbling</i> |
| NOV 2019 | Invited speaker to the <i>Differential Geometry seminar</i> , Nancy
Title of the talk: <i>An exploration of Willmore bubbling</i> |
| OCT 2019 | Invited speaker to the <i>Geometry seminar</i> , Brussels
Title of the talk: <i>On the compactness of Willmore immersions</i> |
| OCT 2019 | Invited speaker to the <i>Geometry seminar</i> , Paris
Title of the talk: <i>On the compactness of Willmore immersions</i> |
| JULY 2019 | Invited speaker to the <i>Geometry seminar of UFC</i> , Fortaleza
Title of the talk: <i>An exploration of Willmore bubbling</i> |

PHD SEMINARS

APRI 2020	Speaker for the <i>Bourbakonfs</i> (informal virtual seminar for PhD students) An analytic look at the sphere eversion
MAY 2019	Speaker for the <i>Bourbakettes</i> (informal seminar for PhD students) A panorama of curvature notions and their nuances
NOV 2018	Speaker for the <i>rencontre master-doctorants</i> Title of the talk : <i>Elastic energies in geometry</i>
APR 2018	Speaker for the <i>Bourbakettes</i> An introduction to Bryant formalism and conformal geometry
NOV 2017	Invited speaker for the <i>séminaire des doctorants</i> , Amiens Title of the talk : <i>Elastic energies and Willmore surfaces</i>
NOV 2017	Speaker for the <i>Bourbakettes</i> An introduction to semi-Riemannian geometry and relativity theory
JAN 2017	Speaker for the <i>Bourbakettes</i> An introduction to concentration phenomena

RESEARCH VISITS

FEB 2020	Invitation to Melbourne by <i>Yann Bernard</i>
JUNE-JULY 2019	Beneficiary of the COFECUB program, stay in Fortaleza thanks to the invitation of <i>Jorge Lira</i> . Beginning of a collaboration with <i>Jorge Lira</i> and <i>Rodrigo Avalós</i>

CONFERENCES, SUMMER SCHOOLS AND SEMINARS

JAN 2020	<i>Geometry Day</i> , Créteil University, Créteil
DEC 2019	<i>Advances in Geometric Analysis</i> , Université de Paris, Paris
MAY 2019	<i>Variational Problems and the Geometry of Submanifolds</i> , CIRM, Luminy
APR 2019	<i>Three days' workshop in mathematical general relativity</i> , UMPA, Lyon
DEC 2018	<i>Workshop in Geometric Analysis</i> , IHP, Paris
MAY 2018	<i>Oberwolfach Seminar: Spectral estimates on Noncompact Manifolds, applications to Geometry</i> , Oberwolfach
JUNE 2017	<i>Nonlinear Analysis in Rome</i> , NDU, Rome
2016-2020	Weekly attendance to the <i>Geometry seminar</i> , Paris
SEPT 2015	<i>Mathematics in General Relativity</i> , IHP, Paris
MARCH 2014	<i>Analysis spring school</i> , SNS, Pise

PUBLICATIONS LIST

PUBLICATIONS IN PEER-REVIEWED JOURNALS

- APR 2020 | *Minimal Bubbling for Willmore Surfaces*. International Mathematics Research Notices (2020). <https://doi.org/10.1093/imrn/rnaa079>
- FEB 2020 | *Conformal Gauss Map Geometry and Application to Willmore Surfaces in Model Spaces*. Potential Anal (2020). <https://doi.org/10.1007/s11118-020-09825-9>
- APR 2019 | *An ε -regularity result with mean curvature control for Willmore immersions and application to minimal bubbling*, arXiv1904.015215, accepted by Annales de l'Institut Fourier (Jan 2021)

PREPRINTS

- FEB 2021 | *Energy in Fourth Order Gravity*, arXiv:2102.00545, joint work with R. Avalos and J. Lira
- SEPT 2020 | *Energy Estimates for the Tracefree Curvature of Willmore Surfaces and Applications*, arXiv:2009.10180, joint work with Y. Bernard and P. Laurain

BOOKS/RESEARCH MEMOIRS

- SCHED AUG 2021 | *Mean curvature problems in euclidean space* (Lecture notes)
- DEC 2019 | *Moduli spaces of Willmore immersions* (PhD thesis)

LANGUAGES

- CASTELLANO: B1 (once C1, but fell out of practice)
DEUTSCH: B1
ENGLISH: C2
FRANÇAIS: Mother tongue
NIHON : Beginner

INFORMATIC LANGUAGES

- MAPLE : Good knowledge (formal calculus and animations)
SCILAB : Good knowledge (scientific calculus and animations)
LATEX : Mastered

PROFESSIONAL INTERESTS

Geometric Analysis, namely the closure of the minimal surfaces and Willmore surfaces subdomains. Semi-riemannian geometry, conformal gauss map and branching consequences.
Relativity theory, mathematics for physics and physics itself.
Interaction between academia and civil society.

Developing : Geometric Measure Theory, DPW techniques.

ACTIVE RESEARCH SUBJECTS

Willmore bubble trees analysis

Conformal Gauss map

Willmore surfaces classification

Fourth order PDEs

Einstein equations

Lovelock theories, Bach spaces