# Caroline Vernier

*Curriculum Vitæ*

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## Current position

Research and Teaching Assistant (ATER) at the Institut Fourier, Université Grenoble-Alpes (since September 2018)

## PhD studies (October 2015 – August 2018)

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|---|---|
| Advisors | Gilles Carron & Yann Rollin |
| Institution | Laboratoire de Mathématiques Jean Leray (LMJL), Université de Nantes, Nantes |
| Title | Calabi's program and gluing methods |
| Defence date: | October 24, 2018 |

## Education

2014 – 2015 **Master's degree in Fundamental Mathematics (second year)**, *Université de Nantes*.
graduated with honors

2013 – 2014 **Master's degree Preparation to Teaching**, *Université de Nantes*.
French nationwide teaching exam "Agrégation" (Rank : 15th)

2012 – 2013 **Master's degree in Fundamental Mathematics (first year)**, *Université de Nantes*.
graduated with honors

2009 – 2012 **Bachelor's degree in Mathematics**, *Université de Nantes*.
graduated with honors

## Talks

21. Complex Geometry Seminar of the I2M: *"Gluing methods in almost-Kähler geometry"*, Marseille, Dec. 2018
20. Working group "Dirac Operators" of the LMO: *"Gluing methods in almost-Kähler geometry"*, Orsay, Nov. 2018
19. Topology and Geometry Seminar of the LMBA: *"Gluing methods in almost-Kähler geometry"*, Brest, Nov. 2018
18. Complexe Geometry Seminar of the IMT: *"Gluing methods in almost-Kähler geometry"*, Toulouse, Nov. 2018
17. Algebra and Geometry Seminar of the Institut Fourier: *"Gluing methods in almost-Kähler geometry"*, Grenoble, Sep. 2018
16. Meetings of ANR EMARKS: *"Gluing methods in almost-Kähler geometry"*, Jussieu (Paris), Sep. 2018

15. Working group on Kähler geometry: *"Gluing methods in almost-Kähler geometry"*, UQAM Montreal, Apr. 2018
14. Working group on Kähler geometry: *"Arezzo-Pacard's gluing methods in Kähler geometry"*, UQAM Montreal, Mar. 2018
13. Reading group on Algebraic Geometry: *"Holomorphic vector bundles, connections and curvature"*, UQAM Montreal, Feb. 2018
12. Working group on extremal metrics: *"Holomorphic vector fields on a Kähler manifold"* and *"Deformation of extremal metrics: LeBrun and Simanca's results"*, UQAM Montreal, Feb. 2018
11. International Conference "Constant Scalar Curvature Metrics in Kähler and Sasaki Geometry" : *Gluing methods in almost-Kähler geometry*, CIRM Marseille, Jan. 2018
10. PhD students' seminar: *"Canonical metrics from Gauss to Calabi"*, Angers, Dec. 2017
9. PhD students' seminar: *"Canonical metrics from Gauss to Calabi"*, Nantes, Nov. 2017
8. Séminaire Quimpériodique, Quimper, Nov. 2017
7. Geometry and Global Analysis seminar, Nantes, Nov. 2017
6. Lebesgue PHD meeting, Rennes, Oct. 2017
5. Working group on Positive Mass conjecture, Nantes, Jan. 2017
4. PhD students' seminar, Nantes, Nov. 2016
3. "Journée de sortie" of the LMJL, Nantes, July 2016
2. PhD students' seminar, Nantes, April 2016
1. Talk to the Global Analysis and Geometry team, Nantes, Dec. 2015

## Attended conferences and summer schools

June 2017 **Dynamical Geometric Analysis in Orsay**, *Orsay, France*.

June 2017 **Complex analytic and differential geometry**, *Grenoble, France*.

June 2017 **Séminaire Quimpériodique**, *Quimper, France*.

Apr. 2017 **Flows and limits in Kahler geometry**, *Nantes, France*.

Jan. 2017 **Séminaire Quimpériodique**, *Quimper, France*.

Nov. 2016 **Séminaire Quimpériodique**, *Quimper, France*.

Oct. 2016 **ANR GRACK Meeting : Kähler-Einstein families**, *Scuola Normale Superiore di Pisa, Pise, Italie*.

June 2016 **ANR EMARKS Meeting: Extremal Kähler metrics, reductive groups compactifications and stationnary Lagrangians**, *Anogia, Crète, Grèce*.

June 2016 **Recent Advances in Complex Differential Geometry**, *IMT, Toulouse, France*.

Mar. 2016 **Workshop Kähler Geometry, Einstein Metrics, and Generalizations**, *MSRI, Berkeley, California*.

Mar. 2016 **Winter school Komplex Analysis Winter School-KAWA 7**, *IMT, Toulouse, France*.

Jan. 2016 **ANR GRACK Meeting: Variational approach to the Tian-Yau-Donaldson conjecture**, *IMJ-PRG, Paris, France*.

Nov. 2015 **Séminaire Quimpériodique**, *Quimper, France*.

Oct. 2015 **ANR GTO Meeting**, *IMB, Bordeaux, France*.

## Administrative responsibilities

2017 – 2018 Representative of the PhD students at the department board

2016 – 2017 Organisation of the PhD students' seminar of the LMJL

Oct. 2016 Scientific committee of the Lebesgue PhD meeting 2016

2015 – 2016 Participation to a "Math en Jean" activity: discovery of research in middle school

## Internships

Feb 2018 – June 2018 **Research Internship at the Centre interuniversitaire de recherche en géométrie et topologie (CIRGET)**, *Université du Québec à Montréal (UQAM)*, with Vestislav Apostolov.

March 2015 – July 2015 **Master thesis (second year)**, *Université de Nantes*, with Yann Rollin and Gilles Carron.
Study of Arezzo-Pacard's gluing methods in Kähler geometry

Jan. 2013 – June 2013 **Master thesis (first year)**, *Université de Nantes*, with François Laudenbach.
Foliations, Novikov's theorem

Nov. 2012 – May 2012 **Initiation to research (Bachelor's degree)**, *Université de Nantes*, with Éric Paturel.
Tessellations : introduction to hyperbolic geometry and Poincaré's theorem

## Teaching

2015 – 2017 **Problem sessions in Topology and Differential Calculus for undergraduate students**, *48h*.
*Content:* Topology in $\mathbb{R}^n$, metric spaces. Compactness, Connectedness, Completeness. Notion of differential of a function, Inverse Function Theorem and Implicit Function Theorem.

2015 – 2017 **Discrete probabilities for undergraduate students: practical works, with programming language R**, *16h*.
*Content:* Discrete probabilities: classical distributions. Law of Large Numbers. Simulation of discrete random variables.

2017 – 2018 **General mathematics for first-year undergraduate students in Physics: problem sessions**, *48h*.
*Content:* Real numbers. Classical functions: algebraic fractions, exponentials, trigonometric functions. Continuous and differentiable functions. Integrals and antiderivatives. Linear differential equations of order 1 and 2.

2017 – 2018 **General mathematics for first-year undergraduate students in Biology: problem sessions**, *16h*.
*Content:* Complex numbers. Continuous and differentiable functions. Integrals and antiderivatives. Linear differential equations of order 1.

2018 – 2019 **General mathematics for first-year undergraduate students in Engineering: problem sessions**, *66h*.
*Contenu:* Complex numbers. Sums and products. Geometry in $\mathbb{R}^2$ and $\mathbb{R}^2$. Real valued-functions. Limits and derivatives. Integrals and antiderivatives.

## Other skills

*Languages* French: mothertongue ; English : fluent

*Programming* R, Scilab, Matlab, Octave, LaTeX, HTML, CSS, C, Java