

# Tristan OZUCH(-MEERSSEMAN)

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## EMPLOYMENT

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-	<b>C.L.E. Moore Instructor</b>
2020	MASSACHUSETTS INSTITUTE OF TECHNOLOGY, Cambridge, MA

## EDUCATION

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2020	<b>PhD Student at ENS, Mathematics, Paris, France</b> Advisor : Olivier Biquard Subject : <i>Completion of the moduli space of Einstein 4-manifolds.</i>
2017	
2017	<b>Student at ÉCOLE NORMALE SUPÉRIEURE (ENS), Paris, France</b>
2013	2016-2017 PRE-PHD INTERNSHIPS supervised by Olivier Biquard and Aaron Naber
	2015-2016 MASTER'S DEGREE (Analysis, Arithmetics, Geometry, Paris 11), with honors
	2014-2015 MASTER'S DEGREE (ENS, UPMC), with honors
	2013-2014 LICENCE (equivalent to a <i>Bachelor's degree</i> ) (ENS, UPMC), with honors

## PUBLICATIONS AND PREPRINTS

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2020	<i>Completion of the Moduli Space of Einstein 4-manifolds</i> , PhD thesis, 2020.
2020	(with Alix Deruelle) <i>A Łojasiewicz inequality for Ricci-flat ALE spaces</i> , preprint arXiv, math.DG, 2007.09937, 2020.
2019	<i>Noncollapsed degeneration of Einstein 4-manifolds II</i> , preprint arXiv, math.DG, 1909.12960, 2019, submitted to Geometry & Topology
2019	<i>Noncollapsed degeneration of Einstein 4-manifolds I</i> , preprint arXiv, math.DG, 1909.12957, 2019, submitted to Geometry & Topology
2019	<i>Perelman's functionals on cones and Construction of type III Ricci flows coming out of cones</i> , to appear in <i>J. Geom. Anal.</i> 2019, <a href="https://doi.org/10.1007/s12220-018-00131-w">https://doi.org/10.1007/s12220-018-00131-w</a> .
2019	(with Dmitri Burago and Jinpeng Lu) <i>How large isotopy is needed to connect homotopic diffeomorphisms (of <math>T^2</math>)</i> , to appear in <i>J. Topol. Anal.</i> 2019, <a href="https://doi.org/10.1142/S1793525320500028">https://doi.org/10.1142/S1793525320500028</a> .

## RESEARCH EXPERIENCE

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December 2019	<b>Visit at Courant institute</b>
September 2019	<b>Advisor : Bruce KLEINER</b> Desingularization of Einstein manifolds and Ricci flows.
July 2017	<b>Pre-PhD internship at Northwestern University</b>
September 2016	<b>Advisor : Aaron NABER</b> Study of the degeneration of Einstein 4-manifolds.
February 2017	<b>Pre-PhD internship at ENS</b>
September 2016	<b>Advisor : Olivier BIQUARD</b> Study of the desingularization of Einstein orbifolds and obstructions
July 2016	<b>Internship at UC Berkeley/MSRI</b>
February 2016	<b>Advisor : Richard BAMLER</b> Study of Ricci flows and Perelman's functionals on cones – Conditions on the possible conical singularities of a Ricci flow and construction of asymptotically conical expanding solitons. Presentation of several theorems of the proof of the “Codimension 4 conjecture” at the Graduate student seminar. Proofreading of Richard Bamler's notes on “Structure theory of singular spaces”.
July 2015	<b>Internship at Penn. State University</b>
February 2015	<b>Advisor : Dmitri BURAGO</b> Study of some Geometric flows, Finslerian geometry and other topics in differential geometry. Some isotopy existence results proven (explicit constructions) by geometric flows.
June 2014	<b>Undergraduate thesis</b>
February 2014	<b>Advisor : Irène WALDSPURGER</b> Semester long study of of “Riemannian geometries on the space of plane curves” Peter W. Michor, David Mumford. And redaction of a memoir explaining this article to an undergraduate level written in collaboration with Siarhei Finski.

## TEACHING

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-	<b>C.L.E. Moore Instructor, MIT, Cambridge, MA, USA</b>
2020	Fall 2020   TA multi variable calculus (18.02).
2020	<b>Teaching assistant, ENS, Paris, France</b>
2017	2020   - In charge of the class <b>Mathematics for Humanities</b> .
	2019   - Coorganizer and jury of the <b>undergrad ‘mémoires’ (theses)</b> at ENS.
	- Supervision of an undergraduate thesis.
	2019   - In charge of the class <b>Mathematics for Humanities</b> .
	2018   - Coorganizer and jury of the <b>undergrad ‘mémoires’(theses)</b> at ENS.
	- Supervision of an undergraduate thesis on the <b>level set methods</b> for curve shortening flow and mean curvature flow.
	2018   - In charge of the class <b>Mathematics for Humanities</b> .
	2017   - Coorganizer and jury of the <b>undergrad ‘mémoires’ (theses)</b> at ENS.

## SEMINARS AND CONFERENCES

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### AS AN INVITED SPEAKER :

- November 2020 **BOWL Seminar**, Brussels, Oxford, Warwick, London.  
*Presentation of *Higher order obstructions to the desingularization of Einstein metrics.**
- June 2020 **Oberseminar of Differential Geometry**, Münster.  
*Presentation of *Completion of the moduli space of Einstein 4-manifolds.**
- February 2020 **Séminaire Darboux**, Montpellier.  
*Presentation of *Noncollapsed degeneration of Einstein 4-manifolds I & II.**
- December 2019 **Differential Geometry Seminar**, UC Berkeley.  
*Presentation of *Noncollapsed degeneration of Einstein 4-manifolds I & II.**
- November 2019 **Geometric Analysis and Topology Seminar**, Courant institute, NYU.  
*Presentation of *Noncollapsed degeneration of Einstein 4-manifolds I & II.**
- October 2019 **Geometry/Topology Seminar**, Stony Brook University.  
*Presentation of *Noncollapsed degeneration of Einstein 4-manifolds I & II.**
- May 2019 **Convergence and Low Regularity in General Relativity**, Simons Center, Stony Brook.  
*Presentation of *Noncollapsed degeneration of Einstein 4-manifolds.**
- March 2019 **Geometry seminar**, Bruxelles.  
*Presentation of *Noncollapsed degeneration of Einstein 4-manifolds.**
- February 2019 **Geometry seminar**, Nantes.  
*Presentation of *Noncollapsed degeneration of Einstein 4-manifolds.**
- March 2018 **Masters-PhD meeting**, Jussieu.  
*Presentation of geometric analysis to masters students through the study of Einstein manifolds and Ricci flows.*
- February 2018 **Geometry seminar of IMJ**, Paris Diderot.  
*Presentation of *Perelman's functionals on cones and Construction of type III Ricci flows coming out of cones.**
- January 2018 **Graduate students seminar**, ENS.  
*Presentation of the study of singularity formations in 3D Ricci flows.*
- April 2016 **Graduate student seminar on the proof of Cheeger-Naber of the codimension 4 conjecture**, MSRI, Berkeley.  
*Presentation of Colding's volume stability for Gromov-Hausdorff convergence with lower bounds on the Ricci curvature.*

## AS A PARTICIPANT :

- October 2019    **Recent advances in nonlinear problems Symposium**  
Graduate Center, CUNY
- May 2019    **Master class in differential geometry : the structure of limit spaces**  
Institut Henri Poincaré, Paris
- December 2018    **Geometric analysis at IHP**  
Institut Henri Poincaré, Paris
- 27 July 2018    **McGill University Geometric Analysis Workshop 2018**  
23 July 2018    McGill University, Montréal
- 1 June, 2018    **Geometric Analysis**  
28 May, 2018    ICMS, Edimburgh
- 16 February 2018    **Géométrie : échanges et perspectives**  
Institut Henri Poincaré, Paris
- 9 December 2017    **Riemannian Geometry Past, Present and Future: an homage to Marcel**  
6 December 2017    **Berger**, IHES, Bures-sur-Yvette
- 13 October 2017    **Conference - Geometric Analysis at Roscoff**,  
9 October 2017    Centre Henri Lebesgue, Roscoff
- 21 July 2017    **Summer school in Geometric Analysis**,  
10 July 2017    The Fields institute, Toronto  
"Ricci flow and intrinsic flat convergence" research team.
- July 2016    **Differential geometry semester at MSRI**,  
February 2016    MSRI, Berkeley

## OTHER SKILLS

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**Languages**    French : Native speaker  
                     English : Fluent  
                     Italian : Good command

**Activities**    Competitive swimming, running, cycling, sculpting