

**CURRICULUM VITAE**  
**SEBASTIANO NICOLUSSI GOLO**

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EMPLOYMENTS, FELLOWSHIPS AND GRANTS

INdAM–GNAMPA Project 2019 “Rectifiability in Carnot Groups”  
(as Principal Investigator)  
March 2019 – February 2020

Postdoctoral Fellowship at the University of Padova  
December 2018 – June 2020  
Mentor: Davide Vittone

Postdoctoral Fellowship at the University of Birmingham  
December 2017 – November 2018  
Mentor: Alessio Martini

Visiting student at the University of Granada  
November 2017  
Mentor: Manuel Ritoré

Research Fellowship within the project Marie Curie ITN MAnET  
January 2015 – October 2017  
The legal framework of my research contract with the University of Trento was “assegno di ricerca di cui all’art. 22 della Legge 240/2010”. As a student, I was enrolled in both the University of Trento (Italy) and the University of Jyväskylä (Finland) under a cotutelle agreement between the two departments of Mathematics.

Postgraduate Student at the University of Jyväskylä, Finland  
October 2012 – December 2014

Erasmus at Eberhard Karls Universität Tübingen, Deutschland  
September 2007 – July 2008

Kitchen Hand at Restaurant “Rifugio Agostini”  
July 2004 – August 2004

## EDUCATION

- Doctor of Philosophy in Mathematics: 25 October 2017  
 Double degree based on a cotutelle agreement:  
 University of Jyväskylä, Finland  
 Advisor: *Enrico Le Donne*  
 University of Trento, Italy  
 Advisor: *Francesco Serra Cassano*  
 Thesis: *Topics in the geometry of non-Riemannian Lie groups*  
 Grade: *Pass with distinction*
- Master degree in mathematics: March 2012  
 Università degli Studi di Trento, Italia  
 Supervisor: *Francesco Serra Cassano*  
 Thesis: *The tangent space in subRiemannian geometry*  
 Grade: *110/110 cum laude*
- Bachelor degree in mathematics: July 2009  
 Università degli Studi di Trento, Italia  
 Thesis: *Symplectic geometry*  
 Supervisor: *Roberto Pignatelli*  
 Grade: *108/110*

## PUBLICATIONS

- [1] “A historical account on characterizations of  $C^1$  Manifolds in Euclidean spaces by tangent cones” (with F. Bigolin), *Journal of Mathematical Analysis and Applications* 142 (2014), no. 1, 63-76.
- [2] “Asymptotic behavior of the Riemannian Heisenberg group and its horoboundary” (with E. Le Donne and A. Sambusetti), *Annali di Matematica Pura ed Applicata*, August (2017), Volume 196, Issue 4, pp 1251–1272.
- [3] “Regularity properties of spheres in homogeneous groups” (with E. Le Donne), *Transactions of the AMS*, 370 (2018), 2057-2084.
- [4] “Some remarks on contact variations in the first Heisenberg group and Bernstein’s Problem”, *Annales Academiæ Scientiarum Fennicæ*, 43 (2018), 311-335.
- [5] “Topics in the geometry of non-Riemannian Lie groups”, PhD thesis, *Report*, Department of Mathematics and Statistics, University of Jyväskylä, 163 (2017)
- [6] “The Besicovitch covering property in the Heisenberg group revisited”, (with S. Rigot), accepted in *The Journal of Geometric Analysis* (2018).
- [7] “The Bernstein problem for Lipschitz intrinsic graphs in the Heisenberg group” (with F. Serra Cassano), *Calculus of Variations and Partial Differential Equations* 58 141 (2019)
- [8] “From homogeneous metric spaces to Lie groups”, (with M. G. Cowling, V. Kivioja, E. Le Donne and A. Ottazzi), submitted.
- [9] “Polarised Lie groups contactomorphic to stratified groups” (with A. Ottazzi), submitted.
- [10] “Spectral multipliers and wave equation for sub-Laplacians: lower bounds of Euclidean type” (with A. Martini and D. Müller), submitted.
- [11] “Metric Lie groups admitting dilations” (with E. Le Donne), submitted.

## RESEARCH STAYS

- Visiting Student at “Laboratoire J.A. Dieudonné”, Nice, France (November–December 2016)
- Visiting Graduate Student at the Department of Mathematics of Tufts University, Medford, USA (January–February 2017)
- Visiting Graduate Student at the Simons Semester “Symmetry and Geometric Structures”, Warsaw, Poland (August–October 2017)
- Visiting Research Fellow at the Departamento de Geometría y Topología, Universidad de Granada, Spain (November 2017)

## ACTIVITIES

- Teaching assistant (“Geometry of surfaces in 3D space”): University of Jyväskylä, Finland (Fall 2012)
- Organizer of the seminar for doctoral students at the University of Jyväskylä, Finland (Spring 2014)
- Organizer of the seminar for doctoral students at Institute Henri Poincaré, Paris (October 2014)
- Co-organizer of the conference “Subriemannian Geometry and Beyond”, Jyväskylä, Finland (February 2018)
- Mini-courses “sub-Riemannian geometry from a Hamiltonian viewpoint” and “Hörmander’s operators”, in the context of the conference “Subriemannian Geometry and Beyond”, Jyväskylä, Finland (February 2018)
- Co-organizer of the conference “Harmonic Analysis and PDE Day”, Birmingham, UK (September 2018)
- Principal investigator (coordinatore) of the GNAMPA–INdAM project “Rectifiability in Carnot Groups”, that has been approved in February 2019. The other participants are Roberto Monti (University of Padova), Francesco Serra Cassano (University of Trento), Francesco Boarotto (University of Padova), Antoine Julia (University of Padova), Marco Capolli (University of Trento).

## TALKS

- Talk: “Regularity of spheres in metric groups”, at the Geometric Seminar, University of Jyväskylä, Finland (February 2015)
- Talk: “Regularity of spheres in metric groups”, University of Trento, Italy (March 2015)
- Talk: “Regularity of spheres in metric groups”, for the Junior seminars at ICMAT, Madrid, Spain (May 2015)
- Talk: “Geometry and analysis in the Heisenberg group: results and further problems”, University of Trento, Italy (October 2015)
- Talk: “An insight into Carnot-Carathéodory Geometry”, at the Joint PhD Opening 2016 Biomolecular Sciences and Mathematics, Trento, Italy (February 2016)
- Talk: “A stability result for nonminimal surfaces in the Heisenberg group”, University of Jyväskylä, Finland (March 2016)
- Talk: “Groups with polynomial growth”, University of Jyväskylä, Finland (March 2016)
- Talk: “Self-similar groups and their spheres”, Aalto University, Finland (September 2016)
- Talk: “Geometry and analysis on Carnot groups”, University of Trento, Italy (September 2016)
- Talk: “A new stable surface in the Heisenberg group”, MAnET Metric Analysis Meeting, Université Paris-Sud, France (January 2017)
- Colloquium: “From homogeneous metric spaces to Lie groups”, Tufts University, Medford, MI, USA (February 2017)
- Talk: “The PDEs of minimal surfaces in the Heisenberg group”, Worcester University, MI, USA (February 2017)
- Talk: “Characterization of self-similar Lie groups”, University of Trento, Italy (March 2017)
- Talk: “Characterization of self-similar Lie groups”, Graduate seminar, University of Jyväskylä, Finland (March 2017)
- Talk: “Topics in non-Riemannian geometry”, Public defence of my Doctoral Thesis, University of Jyväskylä, Finland (September 2017)

- Talk “Homogeneous distances and shape of spheres”, IMPAN, Warsaw, Poland (October 2017)
- Talk “Minimal surfaces in the Heisenberg group”, IMPAN, Warsaw, Poland (October 2017)
- Talk “Minimal surfaces in the Heisenberg group”, University of Granada, Spain (November 2017)
- Talk “Minimal surfaces in the Heisenberg group”, University of Birmingham, UK (December 2017)
- Talk “Minimal surfaces in the Heisenberg group”, MAnET final meeting, Bologna, Italy (January 2018)
- Talk “Spectral multipliers and wave equation for sub-Laplacians”, Analysis Seminar, Birmingham, UK (November 2018)
- Talk “Metric Lie groups and their dilations”, Geometry Seminar, Bristol, UK (November 2018)
- Talk “Spectral multipliers and wave equation for sub-Laplacians”, Analysis Seminar, Padova, Italy (January 2019)
- Talk “Spectral multipliers and wave equation for sub-Laplacians”, Subriemannian Geometry and Beyond II, Jyväskylä, Finland (February 2019)
- Talk “Metric Lie groups and their dilations”, Some topics of Geometric Analysis and Geometric Measure Theory, Pisa, Italy (April 2019)
- Talk “Spectral multipliers and wave equation for sub-Laplacians”, Analysis Seminar, IMPAN, Warsaw (May 2019)

#### PARTICIPATION IN CONFERENCES AND SCHOOLS

~ 2012 ~

- Conference “Sub-Riemannian geometry and PDEs”, Levico Terme, Italy (July)

~ 2013 ~

- Tutorial “Interactions Between Analysis and Geometry Tutorials”, IPAM, Los Angeles, U.S. (March)
- Conference “Analysis on metric spaces”, IPAM, Los Angeles, U.S. (March)
- School “ICTP-SISSA-Moscow School on Geometry and Dynamics”, Trieste, Italy (June)
- School “Norwegian summer school on analysis and geometry”, Bergen, Norway (June)
- Conference “XXII<sup>nd</sup> Rolf Nevanlinna Colloquium”, Helsinki, Finland (August)
- Conference “A quasiconformal life: Celebration of the legacy and work of F.W.Gehring”, Helsinki, Finland (August)

~ 2014 ~

- School “Eighth School on Analysis and Geometry in Metric Spaces”, Levico Terme, Italy (June)
- School “Sub-Riemannian manifolds: from geodesics to hypoelliptic diffusion”, CIRM in Marseille, France (September)
- Trimester “Geometry, Analysis and Dynamics on Sub-Riemannian Manifolds”, at IHP, Paris, France (September–December)

~ 2015 ~

- School “Geometric Analysis in the Heisenberg group”, Bologna, Italy (March)
- Trimester “Research Term on Analysis and Geometry in Metric Spaces”, at ICMAT, Madrid, Spain (May)
- School “Ninth School on Analysis and Geometry in Metric Spaces”, Levico Terme, Italy (July)

~ 2016 ~

- Conference “XXVI Convegno Nazionale di Calcolo delle Variazioni”, Levico Terme, Italy (January)
- School “The 26th Jyväskylä Summer School”, Jyväskylä, Finland (August)
- Conference “A Mathematical Tribute to Ennio De Giorgi”, Pisa, Italy (September)
- Conference “Around Analysis, Domains and Mappings – Conference on the occasion of the 75th birthday of Olli Martio”, Jyväskylä, Finland (December)

~ 2017 ~

- Conference “XXXVII Convegno nazionale di Analisi Armonica”, Bressanone-Brixen, Italy (May)
- Conference “23rd Rolf Nevanlinna Colloquium”, Zurich, Switzerland (June)

- School “New trends on Analysis and Geometry in Metric Spaces”, Levico, Italy (June)
- School “Neurogeometry”, Cortona, Italy (July)
- School “The 27th Jyväskylä Summer School”, Jyväskylä, Finland (August)
- Conference “MAnET-miniworkshop”, Jyväskylä, Finland (August)
- Minicourses of the Simons Semester “Symmetry and Geometric Structures”, Warsaw, Poland (August)
- ~ 2018 ~
- Conference “Subriemannian Geometry and Beyond”, Jyväskylä, Finland (February)
- Conference “Young Mathematicians Colloquium”, Birmingham, UK (April)
- Conference “Harmonic Analysis and PDEs Workshop”, Birmingham, UK (April)
- Conference “Geometric Aspects of Harmonic Analysis – a conference on the occasion of Fulvio Ricci’s 70th birthday”, Cortona, Italy (June)
- Conference “Harmonic Analysis and PDE Day”, Birmingham, UK (September)
- ~ 2019 ~
- Minicourses and conference “Spectral multipliers and wave equation for sub-Laplacians”, Subriemannian Geometry and Beyond II, Jyväskylä, Finland (February)
- Conference “Some topics of Geometric Analysis and Geometric Measure Theory”, Pisa, Italy (April)
- “11th School on Analysis and Geometry in Metric Spaces”, Levico Terme, Italy (June)

Last update: July 31, 2019