Matteo Raffaelli

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Born: January 22, 1985—Fiesole, Italy
Nationality: Italian
Pronouns: he/him

Current position

Postdoc, Institute of Discrete Mathematics and Geometry, TU Wien
Start date: May 11, 2020

Research interests

Differential geometry • Submanifolds • Calculus of variations

Education

PhD in Mathematics, Technical University of Denmark, Feb 2019
Thesis: *The geometry of generalized flat ribbons*
Supervisors: S. Markvorsen (main) and J. Bohr

MSc in Civil Engineering, Technical University of Denmark, Aug 2015
Thesis: *Quaternions and the geometry of flat ribbons*
Supervisors: S. Markvorsen (main) and J. Bohr

BSc in Civil Engineering, University of Florence, Dec 2011

Past employment

Postdoc, University of Coimbra, May–Dec 2019
Research assistant, Technical University of Denmark, Dec 2018
PhD student, Technical University of Denmark, Dec 2015 to Nov 2018

Publications

The geometric Cauchy problem for rank-one submanifolds
Comm. Anal. Geom., to appear
https://arxiv.org/abs/1811.08114

Differential geometry of space curves: Forgotten chapters (w/ D. Fuchs, I. Izmestiev, G. Szewieczek, S. Tabachnikov)
Math. Intelligencer 46 (2024), no. 1, 9–21
https://arxiv.org/abs/2212.09716

Planar pseudo-geodesics and totally umbilic submanifolds (w/ S. Markvorsen)
J. Geom. Anal. 34 (2024), no. 2, Paper No. 53, 16 pp.
https://arxiv.org/abs/2107.10087

Curvature-adapted submanifolds of semi-Riemannian groups (w/ M. Camarinha)
Internat. J. Math. 34 (2023), no. 9, Paper No. 2350053, 14 pp.
https://arxiv.org/abs/2003.12295

Total torsion of three-dimensional lines of curvature
Geom. Dedicata 217 (2023), no. 6, Paper No. 96, 8 pp.
https://arxiv.org/abs/2308.12684

Classification of rank-one submanifolds
Results Math. 78 (2023), no. 6, Paper No. 208, 13 pp.
https://arxiv.org/abs/2209.00888

Nonrigidity of flat ribbons
Proc. Roy. Soc. Edinburgh Sect. A 153 (2023), no. 4, 1297–1314
https://arxiv.org/abs/2104.12382

Flat approximation of hypersurfaces along curves (w/ I. Markina)
Manuscripta Math. 160 (2019), no. 3-4, 315–325
https://arxiv.org/abs/1812.00826

Cartan ribbonization and a topological inspection (w/ J. Bohr, S. Markvorsen)
Proc. A 474 (2018), no. 2220, Paper No. 20170389, 17 pp.
https://arxiv.org/abs/1704.08064

Preprints

Existence of optimal flat ribbons (w/ S. Blatt)
https://arxiv.org/abs/2307.07311

Conference & workshop talks

3rd Austrian Calculus of Variations Day
TU Wien, 2023

Geometry Workshop
Technical University of Denmark, 2023

Conference on Geometry: Theory and Applications
Johannes Kepler University Linz, 2023

Differential Geometry and its Applications
University of Hradec Králové, 2022
https://youtu.be/tgV_FAjHN1U

XXIX International Fall Workshop in Geometry and Physics
Centre of Mathematics and Applications, University of Beira Interior, 2021

FRG Workshop on Geometric Methods for Analyzing Discrete Shapes
Center of Mathematical Sciences and Applications, Harvard University, 2021
https://youtu.be/-yJJ_MhstP0

Biology, Analysis, Geometry, Energies, Links [bagel19]: A Program on Low-dimensional Topology,
Geometry, and Applications
Institute for Mathematics and its Applications, University of Minnesota, 2019 (poster)

2nd BYMAT Conference: Bringing Young Mathematicians Together
Institute of Mathematical Sciences, Madrid, 2019

Bridges Finland 2016: Mathematics, Music, Art, Architecture, Education, Culture
University of Jyväskylä, 2016

Seminar talks

Selected Topics in Mathematics: Online Edition, University of Liverpool, 2022
Geometry Seminar, TU Wien, 2021
Geometry Seminar, TU Wien, 2020
Geometry Seminar, University of Coimbra, 2019
Analysis and PDE Seminar, University of Bergen, 2018
Lunch Seminar, Technical University of Denmark, 2017

Courses taught

AT TU WIEN

Geometry for Computer Science, 2020–2023

AT THE TECHNICAL UNIVERSITY OF DENMARK, AS TA

Fundamental Topological Concepts and Metric Spaces, 2018
Differential Geometry with Design Applications, 2016
Introduction to Partial Differential Equations, 2014

Awards & grants

Best showcase presentation, *PhD Bazaar*, Technical University of Denmark, 2017
PhD fellowship, Technical University of Denmark, 2015
Erasmus scholarship, University of Florence, 2010

Service & memberships

Referee for *Proc. A*, *Anal. Math. Phys.*
Executive Committee member of the Austrian Association of Women in Mathematics, 2022–present
Reviewer for zbMATH Open, 2022–present
Member of the American Mathematical Society, 2019–present
Member of the European Mathematical Society, 2019–present