

MARCO GOLLA

CURRICULUM VITAE

PERSONAL INFORMATION

Born in Italy, April 4, 1986

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INTERESTS

Low-dimensional topology: 3- and 4-manifolds, contact and symplectic structures, surfaces in 4-manifolds, Heegaard Floer homology.
Singularity theory: plane singular complex curves, singularities of complex curves and surfaces, deformations of complex singularities.

WORK EXPERIENCE

2018–Present Chargé de recherche, CNRS, UNIVERSITY OF NANTES

2017 Postdoc, UNIVERSITY OF OXFORD

2015–2017 Postdoc, UNIVERSITY OF UPPSALA

2014–2015 Postdoc, UNIVERSITY OF PISA

2012–2014 Postdoc, RÉNYI INSTITUTE OF MATHEMATICS

EDUCATION

2009–2012 University of Cambridge

PhD Department of Pure Mathematics and Mathematical Statistics
Thesis: *Ozsváth–Szabó invariants of contact surgeries*
Advisor: Dr Jacob RASMUSSEN

2004–2009 University of Pisa and Scuola Normale Superiore

Diploma 70 cum laude · Scuola Normale Superiore · Mathematics

MA 110 cum laude · Università di Pisa · Mathematics
Master thesis: *Combinatorial Heegaard Floer homology and invariants of Legendrian and transverse knots.*
Advisor: Prof Paolo LISCA

BA 110 cum laude · Università di Pisa · Mathematics
Bachelor thesis: *Tropical geometry.*
Advisor: Prof Bruno MARTELLI

PUBLICATIONS

Published

1. (with K. Larson) *Linear independence in the rational homology cobordism group*, to appear in *J. Inst. Math. Jussieu*.
2. (with P. Ghiggini and O. Plamenevskaya) *Surface singularities and planar contact structures*, to appear in *Ann. Inst. Fourier (Grenoble)*.
3. (with D. Celoria) *Heegaard Floer homology and concordance bounds on the Thurston norm*, *Trans. Amer. Math. Soc.* **373** (2020) no. 1, 295–318.
4. (with A. Juhász) *Functoriality of the EH class and the LOSS invariant under Lagrangian concordances*, *Algebr. Geom. Topol.* **19** (2019), no. 7, 3683–3699.
5. (with C. Scaduto) *On definite lattices bounded by integer surgeries along knots with slice genus at most 2*, *Trans. Amer. Math. Soc.* **372** (2019) no. 11, 7805–7829.
6. (with P. Aceto and A. G. Lecuona) *Handle decompositions of rational balls and Casson–Gordon invariants*; *Proc. Amer. Math. Soc.* **148** (2018), no. 9, 4059–4072.
7. (with M. Marengon) *Correction terms and the non-orientable slice genus*; *Michigan Math. J.* **67** (2018), no. 1, 59–82.
8. (with S. Behrens) *Heegaard Floer correction terms, with a twist*, *Quantum Topol.* **9** (2018), no. 1, 1–37.
9. (with J. Bodnár and D. Celoria) *A note on cobordisms of algebraic knots*; *Algebr. Geom. Topol.* **17** (2017), no. 4, 2543–2564.
10. (with B. Martelli) *Pair of pants decomposition of 4-manifolds*; *Algebr. Geom. Topol.* **17** (2017), no. 3, 1407–1444.
11. (with P. Aceto and K. Larson) *Embedding 3-manifolds in spin 4-manifolds*; *J. Topol.* **10** (2017), no. 2, 301–323.
12. (with P. Aceto) *Dehn surgeries and rational homology balls*, *Algebr. Geom. Topol.* **17** (2017), no. 1, 487–527.
13. (with J. Bodnár and D. Celoria) *Cuspidal curves and Heegaard Floer homology*, *Proc. London Math. Soc.* **112** (2016) no. 3, 512–548.
14. (with P. Lisca) *On Stein fillings of contact torus bundles*, *Bull. London Math. Soc.* **48** (2016), no. 1, 19–37.
15. *Comparing invariants of Legendrian knots*, *Quantum Topol.* **6** (2015), no. 3, 365–402.
16. *Ozsváth–Szabó invariants of contact surgeries*, *Geom. Topol.* **19** (2015), no. 1, 171–235.

Preprints

17. (with K. Larson) *3-manifolds that bound no definite 4-manifold*, [arXiv:2012.12929](https://arxiv.org/abs/2012.12929).
18. (with F. Kütle) *Symplectic isotopy of rational cuspidal sextics and septics*, [arXiv:2008.10923](https://arxiv.org/abs/2008.10923).
19. (with P. Aceto, K. Larson, and A. G. Lecuona) *Surgeries on torus knots, rational balls, and cabling*, [arXiv:2008.06760](https://arxiv.org/abs/2008.06760).
20. (with P. Feller) *Non-orientable slice surfaces and inscribed rectangles*, [arXiv:2003.01590](https://arxiv.org/abs/2003.01590).
21. (with J. Etnyre) *Symplectic hats*, [arXiv:2001.08978](https://arxiv.org/abs/2001.08978)
22. (with L. Starkston) *The symplectic isotopy problem for rational cuspidal curves*, [arXiv:1907.06787](https://arxiv.org/abs/1907.06787).

In preparation

23. (with L. Starkston) *Symplectic fillings and rational cuspidal curves*.

OTHER

- Conference talks*
(* = contributed)
- 2020 · *Surgeries along torus knots bounding rational balls*
Geometry & Topology workshop Turkey · virtual
 - 2020 · *Möbius bands and the square peg problem*
Clay workshop on Low-dimensional topology · University of Oxford
 - 2019 · *The symplectic isotopy problem for singular curves*
Berlin–Hamburg symplectic seminar · University of Hamburg
 - 2018 · *Singular symplectic curves: isotopy and symplectic fillings*
Tropical geometry in Europe · University of Nantes
 - 2018 · *Rational cuspidal curves and symplectic fillings*
Gauge theory and applications · University of Regensburg
 - 2018 · *Rational cuspidal curves and symplectic fillings*
Geometric structures on 3- and 4-manifolds · IUC, Dubrovnik
 - 2018 · *Obstructing planarity of contact 3-manifolds*
Symplectix · IHP, Paris
 - 2018 · *An obstruction to planarity of contact 3-manifolds*
Khovanov homotopy type · Rényi Institute, Budapest
 - 2017 · *Heegaard Floer homology and deformations of curve singularities*
Swiss Knots · University of Bern
 - 2017 · *Correction terms and the non-orientable slice genus*
Invariants in Low-dimensional Topology · KIAS, Seoul
 - 2016 · *Heegaard Floer homology and cobordisms of algebraic knots**
4-manifolds and knot concordance · MPIM, Bonn
 - 2016 · *Symplectic hats*
Symplectic Geometry, Contact Geometry, and Interactions · University of Augsburg
 - 2015 · *Dehn surgery and rational homology balls*
Stein Manifolds, Contact Structures and Knots · CIRM, Luminy
 - 2015 · *Twisting (Heegaard Floer) correction terms*
ECSTATIC · Imperial College, London
 - 2014 · *Floer homology and invariants of Legendrian knots*
Low-dimensional topology · Hungarian Academy of Sciences, Budapest
 - 2012 · *Ozsváth–Szabó invariants of contact surgeries*
Seminar on symplectic and contact geometry · Free University of Brussels
- Conferences and schools organised*
- 2019 · *Conference Knot concordance and low-dimensional manifolds*
Le Croisic, France · co-organised with Anthony Conway
 - 2018 · *School Instanton gauge theory and applications to 3-manifolds topology*
University of Nantes
 - 2017 · *School Legendrian contact homology, and a variety of augmentations*
Knivsta, Sweden · co-organised with Maksim Maydanskiy
- Research visits*
- Feb–Apr 2014 · ESF exchange, University of Pisa.
 - Oct–Dec 2015 · *Symplectic geometry and topology*, Institute Mittag-Leffler.
 - Jan–Apr 2017 · *Homology theories in low-dimensional topology*, Newton Institute.
- Funding*
- 2020–2023 · *Projets Étoiles montantes* (Région Pays de la Loire) · €101 400.
 - 2019 · PEPS Jeunes chercheuses et jeunes chercheurs (CNRS) · €1 500.
 - 2018 · PEPS Jeunes chercheuses et jeunes chercheurs (CNRS) · €3 000.
- Students*
- Master 2: Fabien Kütle (2018), Issam El Mariami (2019), University of Nantes
 - PhD: Fabien Kütle (started in 2018), University of Nantes

March 3, 2021