

Celeste Damiani

Postdoctoral Data Scientist

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PERSONAL INFORMATION

Title Doctor in Mathematics and its Interactions (Université de Caen Normandie)
Birth 11/01/1987, Trieste, Italy (Italian citizenship)

Employment history

- 2020 – pres. **Postdoctoral Data Scientist**, *Wolfson Institute of Population Health, Queen Mary University of London*
Working on CRUK EDx funded project “An Artificial Intelligence System for Real-time Risk Assessment at Mammography Screening (Mammo AI)”
- 2021 – pres. **Visiting Research Fellow at WMG**, *University of Warwick*
- 2021 – pres. **Digital Environment Research Institute (DERI) Academic Fellow**, *Queen Mary University of London*
- 2018 – 20 **Research Fellow**, *University of Leeds*
Working on a project aiming at modelling excitations of (3+1)d topological phases, through the study of properties of knotted surfaces in a 4-dimensional space-time
- 2018 **Visiting researcher**, *Universität Regensburg*
Independent research on knotted surfaces in a 4-dimensional space-time
- 2016–18 **JSPS Postdoctoral Fellow, OCAMI**, *Osaka City University*
Collaborative and individual research as part of the Knot Theory Research Team of the OCAMI. Science communication activities both at research and outreach level
- 2014–16 **Teaching assistant and Science Communicator**, *Université de Caen Normandie*

Academic history

- 2013–16 **Ph.D. in Mathematics**, *Université de Caen Normandie*, Mention très honorable
Thesis title *The topology of loop braid groups: applications and remarkable quotients*
advisor Paolo Bellingeri
supervisor (*encadrant scientifique*) Emmanuel Wagner
- 2010–13 **Master of Science in Mathematics**, *Università degli Studi di Trieste*
- 2006–10 **Bachelor of Science in Mathematics**, *Università degli Studi di Trieste*

Miscellaneous

- 2020 – pres. **Postgraduate Certificate in Academic Practice (PGCAP)**, *Queen Mary University of London*
- Sept 2021 **Facilitator and participant of the Data Study Group project “Using machine learning to improve sleep habits in Dementia patients”**, *The Alan Turing Institute*

Publications and preprints (reverse chronological order)

- Generalisations of Hecke algebras from Loop Braid Groups**, *ArXiv preprint, 2020*, with P. P. Martin and E. C. Rowell
- On a canonical lift of Artin’s representation to loop braid groups**, *Journal of Pure and Applied Algebra*, vol. 225, issue 12, 2021, with J. Faria Martins and P. P. Martin
- Towards a version of Markov’s theorem for ribbon torus-links in \mathbb{R}^4** , *Knots, Low-Dimensional Topology and Applications*, pages 309–328, Springer International Publishing, 2019

[On the group of ring motions of an H-trivial link](#), *Topology and its Applications*, vol. 264, 51-65, 2019, with S. Kamada

[A Markov theorem for extended welded braids and links](#), *Osaka Journal of Mathematics* 56, 2019, no.2, 255–268

[Alexander invariants of ribbon tangles and planar algebras](#), *Journal of the Mathematical Society of Japan*, 70, 2018, with V. Florens

[A journey through Loop Braid Groups](#), *Expo Math* 35, 2017, no. 3, 252–285

[Unrestricted virtual braids, fused links and other quotients of virtual braid groups](#), *J Knot Theor Ramif* 24 (2015), no.12,1550063, 23 pp, with V. Bardakov & P. Bellingeri

Seminars

- 2021 (prev.) **Generalisations of Hecke Algebras from Loop Braid Groups**, [Glasgow G&T seminar](#)
Généralisations des algèbres de Hecke à partir des groupes de tresses de cercles + Un système de IA pour la détection précoce du cancer du sein, [Séminaire Teich Marseille](#)
An AI System for assessing breast density, *Statistics and Data Science (SDS) seminar*, Queen Mary University of London
Generalisations of Hecke Algebras from Loop Braid Groups, [CUNY Representation Theory Seminar](#)
- 2020 **Generalisations of Hecke Algebras from Loop Braid Groups**, [\[K-OS\] Knot online seminar](#)
Towards a breast density age predictor, *Centre for Cancer Prevention statistics meeting*, Queen Mary University of London
Alexander invariants of ribbon tangles, [Algebra seminar](#), University of Leeds
- 2019 **Loop braid groups and a new lift of Artin’s representation**, [Pure Maths Seminar](#), University of Leicester
Loop braid groups and a new lift of Artin’s representation, [BLOC meeting](#), City, University of London
The ring motion group of an H-trivial link, [Topology seminar](#), University of Sheffield
Le groupe de mouvements d’un entrelacs H-trivial, [Séminaire Géométrie, Dynamique et Topologie](#), Aix-Marseille Université
- 2018 **A journey through loop braid groups**, *Geometry and Topology seminar*, Luxembourg
Some remarkable quotients of virtual braid groups, [Algebra seminar](#), University of Leeds
A journey through loop braid groups, *Geometry and Topology seminar*, Regensburg
- 2017 **A journey through loop braid groups**, [Maths - String Theory seminar](#), Kavli IPMU, Tokyo
A journey through loop braid groups, [Topology working seminar](#), Osaka University
Vers un théorème de Markov pour entrelacs dans \mathbb{R}^4 , [Séminaire d’algèbre et géométrie](#), Université de Caen Normandie
Invariants d’Alexander pour enchevêtrements ruban, [Séminaire de Topologie](#), Paris - Jussieu
Braid groups, Hecke Algebras, and welded braid groups, *Working Seminar*, Osaka City University
- 2016 **Invariants d’Alexander pour enchevêtrements ruban**, [Séminaire topologies](#), Montpellier
Invariants d’Alexander pour enchevêtrements ruban, *Séminaires géométrie et systèmes dynamiques*, Dijon
Alexander invariants of ribbon tangles, *Topology seminar*, Glasgow
Alexander invariants of ribbon tangles, [Barcelona Algebraic Topology Group](#), U. A. Barcelona
- 2014 **The Multivariable Alexander Polynomial for virtual tangles**, *Séminaire de topologie*, Université de Pau et des Pays de l’Adour

Talks (conferences)

- 2021 **Generalisations of Hecke Algebras from Loop Braid Groups**, [II Encuentro de Álgebra y Teoría de Nudos](#), Zoom
- 2019 **Loop braid groups and a new lift of Artin’s representation**, [56th ARTIN Meeting](#), Edinburgh

- Loop braid groups and a new lift of Artin's representation, *Journées Normandes Topologie*, Caen
- Loop braid groups and a new lift of Artin's representation, *Unifying 4-Dimensional Knot Theory*, BIRS - Banff
- The ring motion group of an H-trivial link, *Knots and Braids in Norway*, Trondheim
- Some properties of congruence subgroups of braid groups (flashtalk), *Winterbraids IX*, Reims
- 2018 Alexander invariants of ribbon tangles and circuit algebra, *Twisted and Quantum knot invariants*, Durham
- Alexander invariants of ribbon tangles and circuit algebra, *Four dimensional topology 2016*, Osaka City University
- Alexander invariants of ribbon tangles and circuit algebra, *Knots in Hellas*, Olympia
- Alexander invariants of ribbon tangles and circuit algebra, *Winterbraids VI*, Lille
- 2018 A journey through loop braid group, *Joint meeting of the UMI, SIMAI and PMS*, Wrocław
- A journey through loop braid group, *Workshop on Higher Gauge Theory*, Leeds
- Moving towards unexplored motion groups, (flashtalk) *Winterbraids VIII*, CIRM - Marseille
- Moving towards unexplored motion groups, *13th East Asian School of Knots*, KAIST - Daejeon
- 2017 A journey through loop braid group, *Pan Pacific International Conference on Topology*, Busan
- Moving towards unexplored motion groups, *4-dim topology 2017*, Osaka City University
- A journey through loop braid group, *Women in Mathematics*, Sapporo
- Towards a Markov theorem for ribbon links in \mathbb{R}^4 , *Tsuda University Topology Workshop*, Tokyo
- Towards a Markov theorem for ribbon links in \mathbb{R}^4 , *Self-distributive systems and quandle (co)homology theory in algebra and low-dimensional topology*, Busan
- A journey through loop braid group, (flashtalk) *Braids in algebra, geometry and topology*, ICMS - Edinburgh
- A journey through loop braid group, *The 12th East Asian School of Knots and Related Topics*, Tokyo
- 2015 On the Alexander polynomial of a (ribbon) tangle, *Glances at Manifolds*, Kraków
- On the Alexander polynomial of a (ribbon) tangle, *Young Topologists' Meeting*, EPFL
- Sur le polynôme d'Alexander d'un enchevêtrement classique, *Journée de la Fédération de Recherche Normandie-Mathématiques*, Le Havre

Supervision and Teaching

- 2021 - 22 **Research Methods (Fundamentals of Statistics part)**, *web-based training*, [Global Parkinson's genetics program](#)
- Statistics for CANM937 Research Methods Module**, *shared course*, Queen Mary University
- 2020 - 21 **Human Science and Public Health PBL facilitator**, *year 2 MBBS*, Queen Mary University
- Locomotor PBL facilitator**, *year 2 MBBS*, Queen Mary University
- L^AT_EX**for writing your thesis, *training sessions for PhD students*, Queen Mary University
- L^AT_EX**for the Absolute Beginner, *training sessions for PhD students*, Queen Mary University
- Statistics for CANM937 Research Methods Module**, *shared course*, Queen Mary University
- 2019 **Co-supervision of a Ph.D student, and of 2 summer bursaries**, University of Leeds
- 2015 - 16 **Algebra (Exercises)**, L3 MATHS; **Probability (Exercises)**, L1 MIASH, Université de Caen

Research funding and awards

- 2019 **Conference grant**, *Loops in Leeds: motion groups and related topics*, **Role:** PI and Chair organiser, **Funding body:** Research and Innovation Committee of the School of Mathematics (Univ. of Leeds), Value: £5,358
- 2019 **Conference grant**, *Loops in Leeds: motion groups and related topics*, **Role:** PI and Chair organiser, **Funding body:** London Mathematical Society, Scheme 1, Value: £4,004
- 2018 **Personal travel grant**, **Funding body:** European Mathematical Society, Value: €500

- 2018 **Research project: Emergent physics from lattice models of higher gauge theory**, **Role:** Participant, **Funding body:** the Leverhulme Trust
- 2016–18 **Grant-in-Aid for JSPS Research Fellow**, **Role:** Co-I, joint with Seiichi Kamada, **Funding body:** JSPS, **Dates:** 01/11/2016 - 31/03/2018, **Value:** ¥1,500,000
- 2012 **International Mobility Grant**, *Stay at Université de Caen*, **Funding body:** Italian Government
- 2008–09 **Erasmus**, *Fribourg*, Switzerland

Outreach

- 2020 **Leeds Festival of Science Roadshow**, *Workshop at KS5 level, Leeds*
- 2019 **Academic taster session**, *Part of the programme Reach for Excellence*, University of Leeds
Leeds Festival of Science Roadshow, *Workshop at KS5 level, Bradford*
- 2017 **What is a knot? - JSPS Science Dialogue program**, *Fujishima High School, Fukui, Japan*
- 2014–15 **Interventions in schools**, *doctoral mission in scientific communication, Caen*
- 2013–16 **Fête de la Science**, *Stand animation, Conference for general public, Atelier du chercheur, Caen*
- 2012 **Ten hours with Henri Poincaré**, *Animation of the Labosaique stand, Sorbonne, Paris*
- 2010 **Science Centre Immaginario Scientifico**, *Internship as guide for primary schools, Trieste*

Organisational activities and community involvement

Reviewer for MathSciNet and zbMath

- 2021 - pres. **Co-organiser of the Wolfson Institute Statisticians meeting**, Queen Mary University of London
- 2020 **Planning of Patients and Public Involvement meeting for the Mammo AI project**, Queen Mary University of London
- 2019 **Workshop Loops in Leeds: motion groups and related topics**, *With: J. Faria Martins, P. Martin, A. Bullivant, F. Torzewska, H. Albeladi*, School of Mathematics, University of Leeds
- 2018 **Study group on Loop Braid Groups, TQFTs, and Higher Gauge Theory**, University of Leeds
- 2015–16 **Ph.D. students representative at the Laboratory Council**, LMNO, Université de Caen

Languages

- Native: Italian
- Fluent: English, French, Spanish
- Notions: Japanese, German

In my spare time...

...You will find me in a ballet studio or up a climbing wall.