Andrea Di Lorenzo

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Personal information

Date of birth	22 November 1991
Place of birth	Rome
Nationality	Italian

Present and past positions

2021– now	**Wissenschaftlicher Mitarbeiter**, *Humboldt University*, Berlin, Germany.
2019–2021	**Postdoc**, *Aarhus University*, Aarhus, Denmark.
Spring 2019	**Program associate for the semester on Birational Geometry and Moduli Spaces**, *MSRI*, Berkeley, CA.

Education

2015–2019	**Ph.D. in Mathematics**, *Scuola Normale Superiore*, Thesis title: "Integral Chow ring and cohomological invariants of stacks of hyperelliptic curves". Advisor: Angelo Vistoli, *cum laude*.
2013–2015	**Master degree in Mathematics**, *Sapienza University of Rome*, Thesis title: "The Schottky problem and minimal cohomology classes". Advisor: Enrico Arbarello, 110/110 *cum laude*.
2010–2013	**Bachelor degree in Mathematics**, *Sapienza University of Rome*, Thesis title: "The geometry of the moment map". Advisor: Paolo Piazza, 110/110 *cum laude*.
2005–2010	**High school diploma**, *Liceo classico "Orazio"*, Rome, 100/100 *cum laude*.

Long term visits

Sep. 2021	**Junior fellow**, Institute Mittag-Leffler, Stockholm.
Dec. 2019	**Research guest** (invited by A. Kresch), *University of Zürich*, Zürich.
Spring 2017	**Ph.D. visiting student** (invited by A.J. de Jong), *Columbia University*, New York.

Short term visits

Apr 2022	University of Washington, *Seattle*.
Feb 2020	Scuola Normale Superiore, *Pisa*.
Nov 2019	KTH, *Stockholm*.
Aug 2019	Scuola Normale Superiore, *Pisa*.

Research interests

Moduli of curves, K3 surfaces, Weierstrass fibrations, stable maps.

Picard groups, integral Chow rings, equivariant intersection theory.

Cohomological invariants (a.k.a. unramified cohomology) and Brauer groups.

Quadratic intersection theory and Chow-Witt groups.

Logarithmic geometry, compactification of Prym varieties.

Publications

Stable cuspidal curves and the integral Chow ring of $\overline{\mathcal{M}}_{2,1}$, *joint with Michele Pernice and Angelo Vistoli*, *to appear on* Geometry & Topology.

Equivariant Chow-Witt groups and moduli stacks of elliptic curves, *joint with Lorenzo Mantovani*, *to appear on* Documenta Mathematica.

Cohomological invariants of root stacks and admissible double coverings, *joint with Roberto Pirisi*, Canadian Journal of Mathematics, 2023, 75(1), pp. 202–224.

Integral Chow ring of the stack of smooth non-hyperelliptic curves of genus three, *joint with Damiano Fulghesu and Angelo Vistoli*, Transactions of the American Mathematical Society, 2021, 374(8), pp. 5583–5622.

Brauer groups of moduli of hyperelliptic curves via cohomological invariants, *joint with Roberto Pirisi*, Forum of Mathematics, Sigma, 2021, 9, pp. 2259–2333.

A complete description of cohomological invariants of even genus hyperelliptic curves, *joint with Roberto Pirisi*, Documenta Mathematica, 2021, 26, pp. 199–230.

Picard group of moduli of curves of low genus in positive characteristic, Manuscripta Mathematica, 2021, 165(3-4), pp. 339–361.

Cohomological invariants of the stack of hyperelliptic curves of odd genus, Transformation Groups, 2021, 26(1), pp. 165–214.

The Chow ring of the stack of hyperelliptic curves of odd genus, International Mathematics Research Notices, 2021, 2021(4), pp. 2642–2681.

On quantum and relativistic analogues in Mean-Field Spin models, *with A. Barra, F. Guerra, A. Moro*, Proc. Royal Soc. A, 2014, 470(2172), 20140589.

Preprints

Effective morphisms and quotient stacks, *joint with Giovanni Inchiostro, arxiv:2303.10751*, 2023.

Degenerations of twisted maps to algebraic stacks, *joint with Giovanni Inchiostro, arxiv:2210.03806*, 2022.

Cohomological invariants and Brauer groups of algebraic stacks in positive characteristic , *joint with Roberto Pirisi, arXiv:2207.08792*, 2022.

The integral Chow rings of moduli of Weierstrass fibrations, *joint with Samir Canning and Giovanni Inchiostro, arXiv:2204.05524*, 2022.

Intersection theory on moduli of smooth complete intersections, *arXiv:2201.06024*, 2022.

Polarized twisted conics and moduli of stable curves of genus two, *joint with Angelo Vistoli, arXiv:2103.13204* , 2021.

Integral Picard group of the stack of quasi-polarized K3 surfaces of low degree, *arXiv:1910.08758*, 2019.

Conference talks

Introduction to equivariant intersection theory (minicourse), *AGNES Summer School, Brown University, Providence (RI)*, July 2023 (upcoming).

Invariants of moduli stacks, *DMV annual meeting 2022, Berlin*, September 2022.

Quadratic invariants of moduli of elliptic curves, *Invariants in Algebraic Geometry, Dijon*, May 2022.

Intersection theory with quadratic forms and moduli of elliptic curves, *Giornate di Geometria Algebrica e Argomenti Correlati XV, Gargnano*, June 2021.

The integral Chow ring of the stack of hyperelliptic curves of odd genus, *GAeL XXVI, Strasbourg*, June 2018.

Seminar talks

Log Prym varieties, *Scuola Normale Superiore, Pisa*, 8 March 2023.

Degenerations of twisted maps to algebraic stacks, *Humboldt University, Berlin*, 26 October 2022.

Brauer groups of moduli of hyperelliptic curves and their compactifications, *University of Washington, Seattle*, 5 April 2022.

Quadratic invariants of moduli of elliptic curves, *University of Bologna*, 18 March 2022.

The integral Chow ring of the stack of stable 1-pointed curves of genus two, *University of Roma 3*, 10 March 2022.

Quadratic invariants of moduli of elliptic curves, *University of Pisa*, 2 March 2022.

Integral Chow ring of moduli of stable 1-pointed curves of genus two, *University of Bordeaux*, 28 January 2022.

Brauer groups of moduli of hyperelliptic curves and their compactifications, *University of Amsterdam*, 8 December 2021.

The integral Chow ring of the stack of stable 1-pointed curves of genus two, *Institute Mittag-Leffler*, 14 September 2021.

The integral Chow ring of the stack of stable 1-pointed curves of genus two, *Humboldt University, Berlin*, 9 June 2021.

Mixed Tate motives and Brown's theorem, *STAGOSAUR online seminar*, 7 August 2020.

The Chow ring of the stack of stable curves of genus 2, *KTH, Stockholm*, 30 October 2019.

Picard group of moduli of curves and K3 surfaces, *Aarhus University*, 9 October 2019.

Picard group of moduli of curves and K3 surfaces, *University of Ferrara*, 4 October 2019.

The integral Chow ring of stacks of hyperelliptic curves, *MSRI, Berkeley*, 28 February 2019.

The integral Chow ring of moduli stacks of curves, *MAGIC seminar, Imperial College, London*, 28 January 2019.

Services

-Referee for Algebraic Geometry, Annali della Scuola Normale Superiore di Pisa, Crelle, International Mathematics Research Notices, Mathematische Zeitschrift.

-Advisor for the bachelor thesis of Daniel Acker (expected December 2023).

-Zweitgutachter (second advisor) for the bachelor thesis of Max Urlings (April 2022).

Teaching

Spring 2023	**Algebraic geometry (TA)**, Humboldt University.
Fall 2022	**Analysis III (TA)**, Humboldt University.
Fall 2022	**Linear Algebra (TA)**, Humboldt University.
Spring 2022	**Number theory**, Humboldt University.
Fall 2021	**Algebraic curves (TA)**, Humboldt University.
Fall 2021	**Algebra II (TA)**, Humboldt University.
Spring 2021	**Geometric group theory (TA)**, Humboldt University.
Fall 2020	**Topology of algebraic varieties**, Aarhus University.
Fall 2019	**Cohomological field theories**, Aarhus University.

Other activities

Co-organizer of the lecture course on "Derived algebraic geometry" at Scuola Normale Superiore, Pisa (8 lectures given), *Oct 2017-Jun 2018*.

Co-organizer of the lecture course on "Derived categories, Fourier-Mukai transform and Bridgeland stability" at Scuola Normale Superiore, Pisa (8 lectures given), *Oct 2016-Jun 2017*.

Outreach activities

"University orientation courses" for high school students, organized by Scuola Normale Superiore, *San Gimignano (2016), Roma (2017), Napoli (2018)*.
Tutor for scientific subjects

Awards and scholarships

Fall 2021	Junior Fellowship, *Institute Mittag-Leffler*.
June 2021	Oberwolfach Leibniz Graduate Student Grant, *MFO*.
2014-2015	Excellence program in Mathematics, MA, *Sapienza University of Rome*.
2012-2013	Excellence program in Mathematics, BA, *Sapienza University of Rome*.
2010–2013	Merit-based exemption from tuition fees payment

Languages

Italian	Mothertongue

| English | Fluent |
| French | Intermediate |

Berlin, April 17, 2023