CURRICULUM VITAE ET STUDIORUM

Name: Ruggero Bandiera

EDUCATION

Ph. D. in Mathematics: University of Rome *La Sapienza*, 2015.
Dissertation: *Higher Deligne groupoids, derived brackets and deformation problems in holomorphic Poisson geometry*
Advisor: Marco Manetti

Master Degree in Mathematics: University of Rome *La Sapienza*, 2010.
Thesis: *Rational homotopy theory and formality of Kähler manifolds*
Advisor: Enrico Arbarello

Bachelor Degree in Mathematics: University of Rome *La Sapienza*, 2007.
Thesis: *The topology of algebraic hypersurfaces near isolated singularities*
Advisor: Kieran O'Grady

POSTDOC POSITIONS AND RESEARCH GRANTS

- A one-year post-doc position at University of Rome *la Sapienza*, October 2015 - September 2016.
- A 1 month grant from the Erwin Schrödinger Institute in Vienna (Austria), to work with Florian Schätz (University of Luxembourg) and Nils Carqueville (University of Vienna) on our "Research in Teams"-project *Higher algebraic structures inspired by topology and geometry*, July 17th - August 14th, 2016. Project supported after an open call subjected to peer review.
- A one semester Lecturer position at the Eberly College of Science, Department of Mathematics, Penn State University, January 1 2017 - June 30 2017.
- An RTDa position at University of Rome *La Sapienza*, 12 March 2018 – 12 March 2021 (extended until 12 March 2023).

TEACHING

- MATH 417: *Qualitative theory of differential equations*, January 10 2017 - April 28 2017, Department of Mathematics, Penn State University.
- *Variabile Complessa*, March 2018 - June 2018, Department of Mathematics, University of Rome *La Sapienza*.
- *Geometria II*, February 2019 - June 2019, Department of Mathematics, University of Rome *La Sapienza*.
- *Istituzioni di Matematica 1*, September 2019 - January 2020, Department of Architecture, University of Rome *La Sapienza*.

- *Istituzioni di Matematica 2*, March 2020 - May 2020, Department of Chemistry, University of Rome *La Sapienza*.
- *Algebra Lineare*, September 2020 - January 2021, Department of Mathematics, University of Rome *La Sapienza*.
- *Geometria II*, February 2022 - June 2022, Department of Mathematics, University of Rome *La Sapienza*.

ADVISING

Ph.D. students

- Advisor (jointly with M. Manetti) of Luca Simi, Ph.D. in mathematics (2019), University of Rome *La Sapienza*. Title of the thesis: *Higher structures in deformation theory*.

Master students

- Bianca Fraschetti, laurea triennale in Matematica. Titolo della tesi: *Il teorema di escissione di Blakers-Massey e il teorema di Freudenthal*.
- Filippo Carmine Comparato, laurea triennale in Matematica. Titolo della tesi: *Il teorema di Frobenius e la corrispondenza di Lie*.
- Samuele Ciprietti, laurea triennale in Matematica. Titolo della tesi: *Il teorema di Hurewicz e il teorema di Whitehead*.
- Francesco Linardi, laurea triennale in matematica. Titolo della tesi: *Teoria dell'omologia e i suoi assiomi*.
- Carlo Farneti, laurea magistrale in matematica. Titolo della tesi: *Operads, dualità di Koszul e alcune applicazioni*.
- Nathan David Clay, laurea triennale in matematica. Titolo della tesi: *Un'introduzione alla teoria di Morse*.

PUBLICATIONS

- *On coisotropic deformations of holomorphic submanifolds*, joint work with M. Manetti, Journal of Mathematical Sciences **22** (2015), Kodaira centennial issue, University of Tokyo.
- *Nonabelian higher derived brackets*, Journal of Pure and Applied Algebra **219** (2015).
- *Formality of Kapranov's brackets in Kähler geometry via pre-Lie deformation theory*, International Mathematics Research Notices (2016), no. 21, 6626-6655.
- *Homotopy abelian L_∞ algebras and splitting property*, Rendiconti di Matematica e delle sue applicazioni, Serie **VII**, Volume **37** (2016), 1-18.
- *How to discretize the differential forms on the interval*, joint work with F. Schätz, Higher Structures **1** (2017).
- *Algebraic models of local period maps and Yukawa coupling*, joint work with M. Manetti, Letters in Mathematical Physics **108** (2018), 2055-2097.
- *Shifted derived Poisson manifolds associated with Lie pairs*, joint work with Z. Chen, M. Stiénon and P. Xu, Commun. Math. Phys. (2019).
- *Formality conjecture for minimal surfaces of Kodaira dimension 0*, joint work with M. Manetti and F. Meazzini, Compositio Mathematica **157** (2021), no. 2, 215-235.
- *Polyvector fields and polydifferential operators associated with Lie pairs*, joint work with M. Stiénon and P. Xu, Journal of Noncommutative Geometry **15** (2021), no. 2, 643-711.

ACCEPTED PAPERS

- *Deformations of polystable sheaves on surfaces: quadraticity implies formality*; joint work with M. Manetti and F. Meazzini, accepted for publication on the Moscow Mathematical Journal (acceptance date: 17 June 2020).

PREPRINTS

- *A trick to compute certain Manin products of operads*; `arXiv:1602.08051` [`math.QA`].
- *Eulerian idempotent, pre-Lie logarithm and combinatorics of trees*, joint work with F. Schätz; `arXiv:1702.08907` [`math.CO`].
- *Descent of Deligne-Getzler ∞-groupoids*; `arXiv:1705.02880` [`math.AT`].
- *A closed-formula solution to the color-trace decomposition problem*, joint work with Carlos R. Mafra; `arXiv:2009.02534` [`math.CO`].
- *Cumulants, Koszul brackets and homological perturbation theory for commutative BV_∞ and IBL_∞ algebras*; `arXiv:2012.14812` [`math.QA`].
- *L_∞ liftings of semiregularity maps via Chern-Simons classes*, joint work with E. Lepri and M. Manetti; `arXiv:2111.12985` [`math.AG`].

INVITED TALKS AT WORKSHOPS AND CONFERENCES

- Workshop on *Higher algebra and Lie-infinity homotopy theory*, 25-28 June 2013, university of Luxembourg (invited speaker).
- Workshop on *Noncommutative geometry and higher structures*, 31 August - 04 September 2015, university of Rome *la Sapienza* (invited speaker).
- Conference on *Giornate di Geometria Algebrica ed Argomenti Correlati*, 25-28 May 2016, University of Catania (invited speaker).
- Workshop on *Noncommutative Geometry and Higher Structures*, 11-15 September 2017, University of Würzburg (invited speaker).
- Workshop on *Higher Structures in Symplectic Geometry*, 7-13 May 2018, Tsinghua University and Henan University (invited speaker).
- XVI edition of the GAP conference *GAP XVI: Lie theory and applications to mathematical physics*, 29 May - 2 June 2018, West University of Timisoara (invited speaker).
- Workshop on *Supergeometry and bracket structures in Mathematics and Physics*, 30 March - 03 April 2020, Fields Institute, Toronto (invited speaker). Postponed due to COVID-19 pandemic.
- XVII edition of the GAP conference *GAP XVII: Deformations and Higher Structures*, 25 May - 29 May 2020, University of British Columbia, Vancouver (invited speaker). Postponed due to COVID-19 pandemic.
- Workshop on *DG manifolds in geometry and physics*, 04 January - 08 January 2021, Tsinghua Sanya International Mathematical Forum (TSIMF), Sanya (invited speaker). Postponed due to COVID-19 pandemic.

OTHER INVITED TALKS

- University of Rome *la Sapienza*, 10 October 2012.
- University of Luxembourg, 08 December 2016.
- University of Rome *La Sapienza*, 18 May 2016.
- Erwin Schrödinger Institute, Vienna, 21 July 2016.
- Penn State University, GAP Seminars, 21 February 2017.
- Penn State University, mini-course on *Higher Deligne groupoids in deformation theory and rational homotopy theory*, April 29 - May 3 2017 (6 hours).

- University of Rome *La Sapienza*, 15 January 2018.
- Penn State University, GAP Seminars, 27 November 2018.

OTHER PROFESSIONAL ACTIVITIES

- Local organizer of the conference *Algebraic Geometry and Representation Theory in Rome*, 21-22 December 2015, university of Rome *la Sapienza*.

VISITING

- Erwin Scrhödinger Institute, July-August 2016.
- Penn State University, November-December 2018.
- Penn State University, March-April 2020. Postponed due to COVID-19 pandemic.

JOURNAL REFEREEING

Served as referee for the following journals:

- Journal of Linear Algebra.
- Communications in Algebra.
- Rendiconti di Matematica e delle sue applicazioni.

Data e luogo: Roma, 25 Gennaio 2022

Firma: