

MARCO RAMPAZZO

PERSONAL INFORMATION

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ACADEMIC ACTIVITY

Current position

Postdoc, University of Bologna

February 2021 – now

Previous positions

Teaching assistant, University of Bologna

October 2021 – January 2022

Teaching assistant, University of Stavanger

October 2020 – December 2020

PhD student in mathematics, University of Stavanger

September 2016 – September 2020

Supervisor: Michał Kapustka

Thesis: “Equivalences of Calabi–Yau manifolds and roofs of projective bundles”

Short term visits

Guest of the Paul Sabatier University, Toulouse

February 2019 – May 2019

Funding: Norwegian Research Council mobility grant

Guest of the Max Planck institute for Mathematics in the Sciences, Leipzig

22 June 2022 – 24 June 2022

Funding: MPS MiS

OTHER COLLABORATIONS

Algoretico s.r.l.s.

<https://www.algoretico.it>

January 2022 – now

Topics: recommendation systems, reinforced learning, rectification problems in multiview geometry.

EDUCATION

Master’s degree in Physics

University of Milan

July 2016

Bachelor’s degree in Physics

University of Milan

December 2013

RESEARCH INTERESTS AND WORK IN PROGRESS

Algebraic varieties: Calabi–Yau varieties, homogeneous varieties and homogeneous vector bundles, Fano varieties with multiple projective bundle structures (with Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi). Canonical surfaces in Grassmannians and their smooth quotients (with Francesco Denisi, Enrico Fatighenti, Stevell Muller and Fabio Tanturri)

Derived categories of coherent sheaves: semiorthogonal decompositions, mutations of exceptional collections, derived equivalences, Fourier–Mukai transform, homological projective duality (with Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi, Riccardo Moschetti, Jacopo Gandini)

Birational geometry: roofs of projective bundles, K-equivalence, DK-conjecture (with Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi)

Gauged linear sigma models: multiple geometric phases, phase transitions, variation of GIT (with Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi).

TEACHING

Courses:

Linear algebra fall 2019

Exercise classes / tutoring:

Linear Algebra fall 2021

Discrete Mathematics, Linear Algebra fall 2020

Probability and Statistics spring 2020

Linear algebra fall 2018

Linear algebra fall 2017

INVITED SPEAKER

Workshop “Derived categories and birational geometry”.
K-equivalence and derived categories Milan, 30 June – 1 July 2022

SAXAG seminar. *Derived categories and GLSM phase transitions* Leipzig, 23 June 2022

IMPANGA seminar. *Homogeneous roofs of projective bundles and semiorthogonal decompositions* Warsaw, 3 June 2022

Workshop “Grothendieck ring and derived category: a gathering”.
 \mathbb{L} -equivalence for Calabi–Yau pairs in generalized Grassmannians Turin, 27–28 April 2022

Seminar of Algebra and Geometry of the University of Bologna.
Semiorthogonal decompositions and homogeneous varieties Bologna, 15 June 2021

Seminar of Algebra of the Jagellonian University. *Computing Hodge numbers of Calabi–Yau varieties in Grassmannians* Kraków, 11 April 2019

Workshop “Motives of Calabi–Yau manifolds”. *A gauged linear sigma model description for a pair of non birational Calabi–Yau threefolds* Kraków, 19–21 May 2018

CONTRIBUTED TALKS

- Conference “Recent advances in classical algebraic geometry.
Hodge structures and derived categories of Fano varieties in Grassmannians. Kraków, 27 June – 2 July 2022
- Workshop “Algebraic Geometry days”.
Mukai roofs and K3 surfaces Stavanger, 25–26 November 2019
- Conference “Nasjonalt Algebramøte 2019”. *Derived equivalence of Mukai roofs: the case of K3 surfaces of degree 12* Oslo, 7–8 November 2019
- Conference “Nasjonalt Matematikermøte 2018, PhD day”. *A GLSM description for a pair of non birational Calabi–Yau threefolds* Bergen, 12 September 2018

SEMINARS ORGANIZED

- Seminar: *Bridgeland stability conditions* Bologna – Chemnitz – Nancy, fall 2021
Organizer together with Simone Billi, Francesco Denisi,
Franco Giovenzana, Annalisa Grossi and
Mihai–Cosmin Pavel.
Homepage: <https://marcorampazzo.github.io/bridgeland>
- Seminar: *The mathematics of gauged linear sigma models* Toulouse, spring 2019
Organizer and speaker

PUBLICATIONS AND PREPRINTS

1. *PhD Thesis*: Marco Rampazzo. *Equivalences between Calabi–Yau manifolds and roofs of projective bundles.* (2021). <https://doi.org/10.31265/usps.78>
Available online at <https://ebooks.uis.no/index.php/USPS/catalog/book/78>
2. *Publication*: Michał Kapustka, Marco Rampazzo. *Mukai duality via roofs of projective bundles.* Bull. Lond. Math. Soc. (2022). <https://doi.org/10.1112/blms.12597>
3. *Publication*: Michał Kapustka, Marco Rampazzo. *Torelli problem for Calabi–Yau threefolds with GLSM description.* Communications in Number Theory and Physics, Volume 13, No. 4 (2019). <https://dx.doi.org/10.4310/CNTP.2019.v13.n4.a2>
4. *Publication*: Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi, Marco Rampazzo. *The generalized roof $F(1, 2, n)$: Hodge structures and derived categories.* (2021). Accepted by Algebras and Representation Theory. Preprint available at <https://arxiv.org/abs/2110.10475>
5. *Preprint*: Marco Rampazzo. *New counterexamples to the birational Torelli theorem for Calabi–Yau manifolds.* (2022). Available at <https://arxiv.org/abs/2211.03702>
6. *Preprint*: Marco Rampazzo. *Calabi–Yau fibrations, simple K -equivalence and mutations.* (2020). Available at <https://arxiv.org/abs/2006.06330>
7. *In preparation*: Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi, Marco Rampazzo. *Homological projective duality for some Fano varieties in Grassmannians.* (2022).