

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 – June 2023

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

Hello Human s.r.l.

<https://www.hellohuman.it>

July 2023 – now

Topics: natural language processing, LLM-based approach to recommendation systems.

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, Sara Filippini, 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

Conference “Modern Perspectives on Birational Geometry”. <i>Simple K-equivalence and semiorthogonal decompositions</i>	Taipei, 29 July – 4 August 2023
Workshop “Derived categories and birational geometry”. <i>K-equivalence and derived categories</i>	Milan, 30 June – 1 July 2022
SAXAG seminar. <i>Derived categories and GLSM phase transitions</i>	Leipzig, 23 June 2022
IMPANGA seminar. <i>Homogeneous roofs of projective bundles and semiorthogonal decompositions</i>	Warsaw, 3 June 2022
Workshop “Grothendieck ring and derived category: a gathering”. <i>\mathbb{L}-equivalence for Calabi–Yau pairs in generalized Grassmannians</i>	Turin, 27–28 April 2022
Seminar of Algebra and Geometry of the University of Bologna. <i>Semiorthogonal decompositions and homogeneous varieties</i>	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, 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. Available at <https://arxiv.org/abs/2110.10475>
5. *Preprint*: Riccardo Moschetti and Marco Rampazzo. *Fullness of the Kuznetsov–Polishchuk exceptional collection for the spinor tenfold*. (2023). Available at <https://arxiv.org/abs/2306.10986>
6. *Preprint*: Marco Rampazzo. *New counterexamples to the birational Torelli theorem for Calabi–Yau manifolds*. (2022). Available at <https://arxiv.org/abs/2211.03702>
7. *Preprint*: Marco Rampazzo. *Calabi–Yau fibrations, simple K -equivalence and mutations*. (2020). Available at <https://arxiv.org/abs/2006.06330>
8. *In preparation*: Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi, Marco Rampazzo. *Homological projective duality for some Fano varieties in Grassmannians*. (2022).