

# MARCO RAMPAZZO

## PERSONAL INFORMATION

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## ACADEMIC ACTIVITY

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### 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”

### Guest positions / Thematic programs

Guest of the Paul Sabatier University, Toulouse

February 2019 – May 2019

Funding: Norwegian Research Council mobility grant

Host: Laurent Manivel

## OTHER COLLABORATIONS

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### Algoretico s.r.l.s.

<https://www.algoretico.it>

January 2022 – now

Subject: epipolar geometry in computer vision

## EDUCATION

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### 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

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*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)

*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)

*Mathematical physics*: geometric interpretation of Feynman integrals, physical mirror symmetry for local Calabi–Yau varieties (with Sergio Cacciatori)

## TEACHING

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Linear Algebra, exercise classes	fall 2021
Discrete Mathematics, exercise classes	fall 2020
Linear Algebra, exercise classes	fall 2020
Probability and Statistics, exercise classes	spring 2020
Linear algebra, teaching and exercise classes	fall 2019
Linear algebra, exercise classes	fall 2018
Linear algebra, exercise classes	fall 2017

## CONFERENCE TALKS

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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><math>\mathbb{L}</math>-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
Workshop “Algebraic Geometry days”. <i>Mukai roofs and K3 surfaces</i>	Stavanger, 25–26 November 2019
Conference “Nasjonalt Algebramøte 2019”. <i>Derived equivalence of Mukai roofs: the case of K3 surfaces of degree 12</i>	Oslo, 7–8 November 2019
Seminar of Algebra of the Jagellonian University. <i>Computing Hodge numbers of Calabi–Yau varieties in Grassmannians</i>	Kraków, 11 April 2019
Conference “Nasjonalt Matematikermøte 2018, PhD day”. <i>A GLSM description for a pair of non birational Calabi–Yau threefolds</i> (contributed talk)	Bergen, 12 September 2018
Workshop “Motives of Calabi–Yau manifolds”. <i>A gauged linear sigma model description for a pair of non birational Calabi–Yau threefolds</i>	Kraków, 19–21 May 2018

## SEMINARS ORGANIZED

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Seminar: *Bridgeland stability conditions*  
Organizer together with Simone Billi, Francesco Denisi,  
Franco Giovenzana, Annalisa Grossi and  
Mihai–Cosmin Pavel.  
Homepage: <https://marcorampazzo.github.io/bridgeland>

Bologna – Chemnitz – Nancy, fall 2021

Seminar: *The mathematics of gauged linear sigma models*  
Organizer and speaker

Toulouse, spring 2019

## PUBLICATIONS AND PREPRINTS

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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. *Preprint*: Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi, Marco Rampazzo. *The generalized roof  $F(1, 2, n)$ : Hodge structures and derived categories*. (2021). Available at <https://arxiv.org/abs/2110.10475>
5. *Preprint*: Marco Rampazzo. *Calabi–Yau fibrations, simple  $K$ -equivalence and mutations*. (2020). Available at <https://arxiv.org/abs/2006.06330>
6. *In preparation*: Enrico Fatighenti, Michał Kapustka, Giovanni Mongardi, Marco Rampazzo. *Homological projective duality for some Fano varieties in Grassmannians*. (2022).