

Joel Castillo Rey

PhD Student

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Education

- 2023–Present **PhD Researcher**, *Basque Center for Applied Mathematics (BCAM)*, Bilbao, Spain
Supervisor: Ilya Smirnov.
- Fall 2022 **Research Internship**, *BCAM*, Bilbao, Spain
- 2021–2022 **Master's Degree in Advanced Mathematics**, *Universidad Complutense de Madrid*, Madrid, Spain
- 2017–2021 **Degree in Mathematics**, *Universidad Complutense de Madrid*, Madrid, Spain

Research interests

Commutative Algebra, Algebraic Geometry and Singularity Theory. Local Algebra in Positive Characteristic.

Publications

- 2025 ***Strong Watanabe–Yoshida conjecture for complete intersections***, preprint, *arXiv*

Invited Talks

- Nov 2025 **University of Michigan**, *CA Seminar*, Michigan, USA
- Nov 2025 **University of Illinois in Chicago**, *AG Seminar*, Illinois, USA
- Oct 2025 **Purdue University**, *CA Seminar*, Indiana, USA
- Jan 2024 **Universidad de Sevilla**, *RGAS School on Singularities*, Seville, Spain
- Nov 2023 **ICMAT**, *5th BYMAT Conference*, Madrid, Spain
- Sep 2022 **Universidad Complutense de Madrid**, *XVI Workshop de Jóvenes Investigadores*, Madrid, Spain

Visits

- Aug-Dec 2025 **Research Stay**, *Purdue University*, Indiana, USA
Host: Uli Walther

Posters

- Jun 2025 **Singularities in Algebra and Geometry Conference (CIMAT)**, *Guanajuato*, Mexico
The Strong Watanabe–Yoshida conjecture for complete intersections.

Conferences and courses

- Oct 2025 **KUMUNU 2025**, *University of Missouri*, Columbia, USA
- Nov 2023 **IberoSing International Workshop 2023**, *Granada*, Spain
- Nov 2024 **Sheaf Cohomology Course**, *Zaragoza*, Spain
- Apr 2023 **BCAM-Severo Ochoa Course: Introduction to multiplicity theory**, *Bilbao*, Spain
- Nov 2022 **IberoSing International Workshop 2022**, *Madrid*, Spain
- Nov 2022 **BCAM-Severo Ochoa Lecture: Introduction to Morse Homology**, *Bilbao*, Spain