

# YANG ZHANG

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## PROFILE

I'm currently a Ph.D. student at École Polytechnique Fédérale de Lausanne, under the supervision of Prof. Zsolt Patakfalvi. My interest is in algebraic geometry in positive characteristics.

## EDUCATION

<b>Mathematik, Bachelor of Science</b> Universität Bonn	Fall 2020 - Spring 2023
<b>Mathematics, Master of Science</b> Universität Bonn	Spring 2023 - Spring 2025
<b>Mathematics, Exchange</b> École Polytechnique Fédérale de Lausanne	Fall 2024 - Spring 2025
<b>Mathematics, Ph.D.</b> École Polytechnique Fédérale de Lausanne	Fall 2025 -

## WRITINGS

### **On split coverings of Calabi-Yau threefolds in positive characteristics**

This is my master thesis supervised by Prof. Zsolt Patakfalvi and Prof. Dr. Daniel Huybrechts. I classified weakly ordinary Calabi-Yau threefolds that are finite quotients of abelian varieties in characteristic  $> 2$ , using purely algebraic techniques.

### **On the bounded negativity conjecture**

This is my bachelor thesis supervised by Dr. Gebhard Martin and Prof. Dr. Daniel Huybrechts. I summarized some recent results concerning the bounded negativity conjecture, which is still open in characteristic 0 for now.

### **Automorphisms of (2,2)-complete intersections in characteristic 2**

Jointly with Dr. Gebhard Martin, we computed the automorphism schemes of smooth odd dimensional (2,2)-complete intersections in characteristic 2. This is the unique case among all complete intersections (besides the quadric hypersurfaces and genus 1 curves) whose connected component of the automorphism scheme is non-trivial.

## TEACHING

<b>Tutor of Algebra II - groups</b> École Polytechnique Fédérale de Lausanne, Lecturer: Prof. Andrei Negut	Fall 2025
<b>Tutor of Algebra I (Commutative Algebra)</b> Universität Bonn, Lecturer: Prof. Dr. Daniel Huybrechts	Spring 2024
<b>Tutor of Einführung in die Algebra (Introduction to the Algebra)</b> Universität Bonn, Lecturer: Prof. Dr. Daniel Huybrechts	Fall 2023
<b>Tutor of Algebraic Geometry II</b> Universität Bonn, Lecturer: Dr. Gebhard Martin	Spring 2023
<b>Tutor of Algebraic Geometry I</b> Universität Bonn, Lecturer: Dr. Gebhard Martin	Fall 2022
<b>Tutor of Mathematik für Physiker (Mathematics for phycists) II</b> Universität Bonn, Lecturer: Dr. Illia Karabash	Spring 2022

## SEMINAR TALKS

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<b>Kunz's Theorem</b>	Fall 2024
Technische Universität München	
I presented an alternative proof of the Kunz's theorem on the regularity in positive characteristics using perfection.	
The proof is given by Bhattacharya and Scholze.	
<b>K-Stability</b>	Spring 2024
Universität Bonn	
My talk involves the construction of the moduli stack of K-semistable Fano varieties by discussing their boundedness and openness.	
<b>Compactified Moduli of K3</b>	Spring 2024
Universität Bonn	
I gave the first talk which discusses the basic properties of complex K3 surfaces and moduli spaces of polarized K3 of low degrees.	
<b>Chow Groups and Motives</b>	Fall 2022
Universität Bonn	
The content of my talk consists of introducing the intersection product on the Chow ring of a variety, proof of the moving lemma and the projection formula, and the compatibility of intersection product and cup product.	
<b>Klassische Algebraische Geometrie (Classical Algebraic Geometry)</b>	Fall 2021
Universität Bonn	
I gave a half part in each of two talks. The first talk is about defining product of two projective spaces using the Segre map. The second talk presents the classification of cubic curves on the projective plane.	

## DISTINCTIONS

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IMC Maths 2023, Bronze medal.  
IMC Maths 2022, Silver medal.  
NOIP China 2018, first award.

## EXTRAS

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**Language skills**  
Chinese (native), German (C1+), English (C1+), French (A2).

**Accountant of student company AMBIX** Fall 2017 - Fall 2018  
I was active in AMBIX, a student party focusing on organizing business imitation contest for middle school students in grade 9 to 12.