

# Viktor Frederik Majewski

Homepage <https://viktormajewski.github.io/index.html>

## Curriculum Vitae

### Research Interest

- Differential Geometry** gauge theory, moduli problems in differential geometry, special holonomy spaces, special (higher) geometric structures, symplectic geometry
- Algebraic Geometry** (derived)  $C^\infty$ -geometry, categorification of geometry, homological algebra, moduli problems in algebraic geometry
- Analysis** Fredholm theories for elliptic operators on singular and non-compact spaces, geometric measure theory
- Physics** axiomatic approaches to quantum field theories, String-, M- and F-theory, general relativity

### Education

- Aug.-Nov. 2024 **Research Stay**, *Simons Laufer Mathematical Science Institute (MSRI)*, Berkeley, invited by Prof. Jason Lotay  
**Semester Program:** Special Geometric Structures and Analysis
- 2022–2025 **PhD in Mathematics**, *Humboldt-University*, Berlin
- 2019–2022 **Master of Science Mathematics (with distinction)**, *Georg-August-University*, Göttingen, supervised by Prof. Victor Pidstrygach  
**Title:** Topological Twisted Super Field and Generalised Seiberg-Witten Theories
- 2017–2019 **Bachelor of Science Mathematics**, *Georg-August-University*, Göttingen, supervised by Prof. Victor Pidstrygach  
**Title:** Hyperkähler Geometry of Nilpotent Lie Groups and Twistor Spaces
- 2016–2021 **Bachelor of Science Physics**, *Georg-August-University*, Göttingen, supervised by Prof. Dorothea Bahns  
**Title:**  $\mathcal{N} = 4$  Super Yang-Mills Theory as a Super Twistor String Theory

### Fellowship

- 2022–2025 **BMS Scholarship Recipient**, *Berlin Mathematical School*, Berlin

### Teaching

- 2021 **Teaching Assistant**, *Georg-August-University*, Göttingen  
Tutor for the course *Mathematics for Physicists II* by Prof. Dr. Ralf Meyer
- 2020–2021 **Teaching Assistant**, *Georg-August-University*, Göttingen  
Tutor for the course *Differential Geometry and Gauge Theory I* by Prof. Dr. Victor Pidstrygach
- 2020 **Teaching Assistant**, *Georg-August-University*, Göttingen  
Tutor for the course *Analysis II* by Prof. Dr. Dorothea Bahns
- 2019–2020 **Teaching Assistant**, *Georg-August-University*, Göttingen  
Tutor for the course *Analysis I* by Prof. Dr. Dorothea Bahns

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## Publications and Preprints

2024 **Dirac Operators on Adiabatic Ricci-Flat Orbifold Resolutions: Uniform Elliptic Theory**, (*expected*)

2024 **Resolutions of  $\text{Spin}(7)$ -Orbifolds**, (*expected*)

Excess to files on request

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## Work in Progress

2025  **$\text{Spin}(7)$ -Instantons on Resolutions of  $\text{Spin}(7)$ -Orbifolds I: Construction**, (*expected*)

2025 **Cayley Submanifolds Resolutions of  $\text{Spin}(7)$ -Orbifolds I: Construction**, (*expected*)

2025 **Product-Type  $\text{Spin}(7)$ -Orbifolds and their Resolutions**, (*expected*), joint-work with D.Platt (Imperial College London)

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## Social Engagement

2022–2023 **Student Representative**, *Berlin Mathematical School*, Berlin

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## Invited Talks

Oct. 2024 **University Waterloo**,  *$\text{Spin}(7)$ -Orbifold Resolutions*

Oct. 2024 **Simons Laufer Mathematical Sciences Institute (MSRI)**, *Dirac Operators on Orbifold Resolutions*

May 2024 **Duke University**,  *$\text{Spin}(7)$ -Orbifold Resolutions*, Simons Collaboration on Special Holonomy in Geometry, Analysis and Physics-Meeting

Feb. 2024 **Technical University of Berlin**,  *$\text{Spin}(7)$ -Orbifold Resolutions*, BMS Student Conference

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## References

**Prof. Dr. Thomas Walpuski (PhD Supervisor)**, *Humboldt University of Berlin*, thomas.walpuski@hu-berlin.de

**Prof. Dr. Jason Lotay**, *University of Oxford*, jason.lotay@maths.ox.ac.uk

**Prof. Dr. Spiro Karigiannis**, *University of Waterloo*, karigiannis@uwaterloo.ca

**Prof. Dr. Victor Pidstrygach (Master/Bachelor Supervisor)**, *Georg-August-University Göttingen*, Victor.Pidstrygach@mathematik.uni-goettingen.de