# Viktor Frederik Majewski

Homepage **https://viktormajewski.github.io/index.html**    *Curriculum Vitae*

## Research Interest

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| **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

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| 2024 | **Research Stay**, *Simons Laufer Mathematical Science Institute (MSRI)*, Berkeley, invited by Prof. Jason Lotay |
| | **Semester Program:** Special Geometric Structures and Analysis |
| 2022–20(25) | **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

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| 2022–2025 | **BMS scholarship holder**, *Berlin Mathematical School*, Berlin |

## Teaching

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| 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 |

## Publications and Preprints

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

2024    **Resolutions of Spin(7)-Orbifolds**, *(expected)*

## Work in Progress

2025    **Spin(7)-Instantons on Resolutions of Spin(7)-Orbifolds I: Construction**, *(expected)*

2025    **Cayley Submanifolds Resolutions of Spin(7)-Orbifolds I: Construction**, *(expected)*

2025    **Product-Type Spin(7)-Orbifolds and their Resolutions**, *(expected)*, joint-work with D.Platt (Imperial Collage London)

## Social Engagement

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

## Invited Talks

Oct. 2024    **University Waterloo**, *Spin(7)-Orbifold Resolutions*

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

Mar. 2024    **Duke University**, *Spin(7)-Orbifold Resolutions*, Simons Collaboration on Special Holonomy in Geometry, Analysis and Physics-Meeting

Feb. 2024    **Technical University of Berlin**, *Spin(7)-Orbifold Resolutions*, BMS Student Conference

## 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