

# PROF. DR. VOLKER BRANDING

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## RESEARCH INTERESTS

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- Geometric analysis, Differential geometry, Mathematical physics
- Keywords: Harmonic maps, Biharmonic maps, Wave maps, Higher order variational problems

## PERSONAL INFORMATION

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- Nationality: German
- ORCID: 0000-0002-1535-1474
- My publications on Google Scholar: <https://scholar.google.de/citations?user=Xrjd6xUAAAAJ&hl=de>
- My Researchgate profile: [https://www.researchgate.net/profile/Volker\\_Branding](https://www.researchgate.net/profile/Volker_Branding)

## SCIENTIFIC POSITIONS

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**Full Professor** since August 2025

*University of Rostock*

- Full Professor (W3) for *Analysis*

**Senior Postdoc**

January 2017 - July 2025

*University of Vienna*

- Position funded by two grants of the Austrian Science Fund (FWF)

**Postdoc**

January 2013 - December 2016

*TU Wien*

- Research group “Differential Geometry and geometric structures”

## UNIVERSITY EDUCATION

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**Habilitation**

March 2019

*University of Vienna*

- Habilitation thesis: *The supersymmetric nonlinear sigma model as a geometric variational problem*

**PhD Studies**

October 2008 - December 2012

*University of Potsdam and Albert Einstein Institute, Golm*

- Title of PhD thesis: *The evolution equations for Dirac-harmonic maps*
- Supervisors: Christian Bär, Gerhard Huisken

**University Studies**

October 2002 - June 2008

*FU Berlin & HU Berlin*

- June 2008: Diploma in theoretical physics, thesis on *Supersymmetric Wilson loops in the AdS/CFT correspondence*
- 2007 - 2008: Study of physics and mathematics at HU Berlin
- 2002 - 2007: Study of physics and mathematics at FU Berlin

## GRANTS, SCHOLARSHIPS AND PRIZES

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- Stand-alone project *The standard model as a geometric variational problem* (P 34853) funded by the Austrian Science Fund (FWF) with a volume of 392.616,00€, Duration: October 2023 - now
- Stand-alone project *Geometric analysis of biwave maps* (P 36862) funded by the Austrian Science Fund (FWF) with a volume of 332.808,00€, Duration: April 2022 - now
- Promotion Award of the City of Vienna 2020 (4000€)
- Stand-alone project *Geometric variational problems from string theory* (P 30749) funded by the Austrian Science Fund (FWF) with a volume of 233.383,50€, Duration: October 2017 - March 2021
- Member of the joint project (I1671-N26) between Austria (FWF) and Japan (JSPS) on *Transformations and Singularities*, funding period (Austrian side): July 2014 - March 2018
- Full scholarship within the IMPRS for “Geometric Analysis, Gravitation & String Theory”, AEI Golm

## FIVE SELECTED PUBLICATIONS

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1. **On the normal stability of the 4-harmonic and the ES-4-harmonic hypersphere**  
*J. Differential Equations* 424 (2025), 586–636  
<https://doi.org/10.1016/j.jde.2025.01.029>
2. **On p-harmonic self-maps of spheres** (with Anna Siffert)  
*Calc. Var. Partial Differential Equations* 62 (2023), no. 4, Paper No. 139  
<https://doi.org/10.1007/s00526-023-02481-y>
3. **A structure theorem for polyharmonic maps between Riemannian manifolds**  
*J. Differential Equations* 273 (2021), 14–39  
<https://doi.org/10.1016/j.jde.2020.11.046>
4. **Higher order energy functionals** (with Stefano Montaldo, Cezar Oniciuc and Andrea Ratto)  
*Adv. Math.* 370 (2020), 107236  
<https://doi.org/10.1016/j.aim.2020.107236>
5. **Nonlinear Dirac equations, monotonicity formulas and Liouville theorems**  
*Comm. Math. Phys.* 372 (2019), no. 3, 733–767  
<http://dx.doi.org/10.1007/s00220-019-03608-z>