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Feb 20<sup>th</sup> 2024

## Curriculum Vitae

Max Elliot Hübner

Date and place of birth: October 18<sup>th</sup> 1994, Offenbach am Main, Germany  
Countries of citizenship: Germany, Australia, Greece

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### Positions

September 2021 – Present      Postdoctoral Researcher, Simons Collaboration on  
Special Holonomy in Geometry, Analysis, and Physics,  
Department of Physics, University of Pennsylvania

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### Education

October 2017 – August 2021      DPhil Mathematics, University of Oxford  
Advisor: Professor Sakura Schäfer-Nameki  
Thesis: Higgs Bundles for 4d  $\mathcal{N} = 1$  Gauge Theories

October 2016 – September 2017      MAST Applied Mathematics, University of Cambridge  
Advisor: Professor David Skinner  
Thesis: Partition Functions of 2d Yang-Mills Theory

October 2013 – September 2016      BSc Mathematical Physics, University of Würzburg  
Advisor: Professor Ansgar Denner  
Thesis:  $H \rightarrow 2\gamma$  in the Two-Higgs-Doublet Model

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### Academic Scholarships and Awards

June 2023      Marie Skłodowska-Curie Individual Fellowship (offered, 206,887.68 EUR)

October 2020      Doctoral scholarship of the Oxford Mathematical Institute

October 2017      Doctoral scholarship of the Studienstiftung des deutschen Volkes

August 2017      Peterhouse Mathematical Tripos (Part III) Award

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## Preprints and Publications

15. J. J. Heckman, M. Hübner, C. Murdia, *On the Holographic Dual of a Topological Symmetry Operator*, [2401.09538].
14. F. Baume, J. J. Heckman, M. Hübner, E. Torres, A. P. Turner, X. Yu, *SymTrees and Multi-Sector QFTs*, [2310.12980].
13. M. Cvetič, J. J. Heckman, M. Hübner, E. Torres, *Generalized Symmetries, Gravity and the Swampland*, [2307.13027].
12. M. Cvetič, J. J. Heckman, M. Hübner, E. Torres, *Fluxbranes, Generalized Symmetries, and Verlinde's Metastable Monopole*, [2305.09665].
11. B. Acharya, M. Del Zotto, J. J. Heckman, M. Hübner, E. Torres, *Junctions, Edge Modes, and  $G_2$ -Holonomy Orbifolds*, [2304.03300].
10. J. J. Heckman, M. Hübner, E. Torres, X. Yu, H. Y. Zhang, *Top Down Approach to Topological Duality Defects*, Phys. Rev. D 108 no. 4 (2023) 046015, [2212.09743].
9. J. J. Heckman, M. Hübner, E. Torres, H. Y. Zhang, *The Branes Behind Topological Symmetry Operators*, Fortsch. Phys. 71 (2023) 1, 2200180, [2209.03343].
8. M. Cvetič, J. J. Heckman, M. Hübner, E. Torres, *0-Form, 1-Form and 2-Group Symmetries via Cutting and Gluing of Orbifolds*, Phys. Rev. D 106 no. 10 (2022) 106003 [2203.10102].
7. M. Hübner, D. R. Morrison, S. Schäfer-Nameki, Y. Wang, *Generalized Symmetries in F-theory and the Topology of Elliptic Fibrations*, SciPost Phys. 13 (2022) 030, [2203.10022].
6. S. Giacomelli, L. Bhardwaj, M. Hübner and S. Schäfer-Nameki, *Relative Defects in Relative Theories: Trapped Higher-Form Symmetries and Irregular Punctures in Class S*, SciPost Phys. 13 (2022) 101 [2201.00018].
5. L. Bhardwaj, M. Hübner and S. Schäfer-Nameki, *Liberating Confinement from Lagrangians: 1-form Symmetries and Lines in 4d  $\mathcal{N} = 1$  from 6d  $\mathcal{N} = (2, 0)$* , SciPost Phys. 12 (2022) 040 [2106.10265].
4. L. Bhardwaj, M. Hübner and S. Schäfer-Nameki, *1-form Symmetries of 4d  $\mathcal{N}=2$  Class S Theories*, (2021), SciPost Phys. 11 (2021) 096 [2102.01693].
3. M. Hübner, *Local  $G_2$ -manifolds, Higgs Bundles and a Colored Quantum Mechanics*, JHEP 05 (2021) 002 [2009.07136].
2. M. Hübner, *5d SCFTs from  $(E_n, E_m)$  Conformal Matter*, JHEP 12 (2020) 014 [2006.01694].

1. A. P. Braun, S. Cizel, M. Hübner and S. Schäfer-Nameki, *Higgs Bundles for M-theory on  $G_2$ -Manifolds*, JHEP 03 (2018) 199 [1812.06072].
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## Invited Talks

February 2024	Swampland Seminar, Online, Harvard University / CERN / IFT Madrid
February 2024	Quiver Meeting, Online, Oxford University, UK
February 2024	Symmetry Seminar, Online, Oxford University, UK
October 2023	High Energy Theory Seminar, Johns Hopkins University, USA
October 2023	Harvard Swampland Initiative, Harvard University, USA
September 2023	High Energy Theory Seminar, Texas A&M, USA
August 2023	Categorical Aspects of Symmetries, Nordita, Sweden
July 2023	High Energy Theory Seminar, KIAS, South Korea
June 2023	High Energy Theory Seminar, KAIST, South Korea
May 2023	The Geometry, Algebra, and Physics of Higgs Bundles, University of British Columbia, Canada
April 2023	Southeastern Regional Mathematical String Theory Meeting, Virginia Tech, United States
March 2023	Physics and Special Holonomy, UC Santa Barbara, United States
March 2023	Geometry and Strings 2023, University of Pennsylvania, United States
November 2022	High Energy Theory Seminar, Northeastern University, United States
September 2022	Simons Collaboration for Special Holonomy in Geometry, Analysis and Physics: Progress and Open Problems, SCGP, United States
September 2022	Simons Collaboration for Special Holonomy in Geometry,

	Analysis and Physics: Annual Meeting, Flatiron Institute, United States
June 2022	Geometry, Topology and Singular Special Holonomy Spaces, University of Freiburg, Germany
June 2022	Quiver Meeting, Imperial College London, England
February 2022	Geometrization of (S)QFTs in $D \leq 6$ , Aspen Center for Physics, United States
September 2021	High Energy Theory Seminar, University of Pennsylvania, United States
September 2021	Simons Collaboration for Special Holonomy in Geometry, Analysis and Physics: Progress and Open Problems, SCGP, United States
December 2020	Seminar Series on String Phenomenology, Online Seminar
December 2020	High Energy Theory Seminar, City, University of London, England
August 2020	GLSMs – 2020, Virginia Tech, United States

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## Contributed Talks

July 2023	String Phenomenology 2023, Parallel Session, IBS, South Korea
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## Organization

March 2023	Co-organizer for Simons Collaboration meeting: Physics and Special Holonomy (Conference), UC Santa Barbara
March 2023	Co-organizer for Geometry and Strings (Conference), University of Pennsylvania
September 2022 – Present	Co-organizer for High Energy Theory Seminar Series, University of Pennsylvania
September 2019	Co-organizer for Geometry and Strings (Conference), University of Oxford

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## Supervision

June/July 2019

Co-supervision, Summer Studentship Mathematics Oxford,  
Andrea Rotaru (Wadham College, Oxford)

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## Reviewing Activities

Referee for SciPost Physics

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## Teaching (Tutorials at the University of Oxford)

Trinity Term 2021	Revision Classes (Dynamics, Metric Spaces, Complex Analysis)
Hilary Term 2021	Dynamics, Multivariable Calculus
Trinity Term 2020	Special Relativity, Revision Classes (Dynamics)
Hilary Term 2019	Dynamics
Trinity Term 2019	Special Relativity, Revision Classes (Dynamics)
Hilary Term 2019	Dynamics
Trinity Term 2018	Conformal Field Theory, Revision Classes (Dynamics)
Hilary Term 2018	Dynamics

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## Language Skills

German	Fluent, professional proficiency
English	Fluent, professional proficiency