Max Elliot Hübner
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Curriculum Vitae - Max Elliot Hübner

Countries of citizenship: Germany, Australia

Positions

September 2024 − Present Postdoctoral Researcher	Marie Skłodowska-Curie Individual Fellow (MSCA) Primary: Department of Physics, University of Uppsala Secondary: CMSA, Harvard University
September 2021 − August 2024 Postdoctoral Researcher	Simons Collaboration on Special Holonomy in Geometry, Analysis, and Physics Department of Physics, University of Pennsylvania

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: $H \to 2\gamma$ in the Two-Higgs-Doublet Model

Grants and Scholarships

June 2023	Marie Skłodowska-Curie Individual Grant (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

Preprints and Publications[1]

21. N. Braeger, V. Chakrabhavi, J. J. Heckman, M. Hübner, *Generalized Symmetries of Non-SUSY and Discrete Torsion String Backgrounds*, [2504.10484].

20. J. J. Heckman, M. Hübner, C. Murdia, *On the Holographic Dual of a Symmetry Operator at Finite Temperature*, [2503.16427].

19. M. Cvetič, J. J. Heckman, M. Hübner, C. Murdia, *Metric Isometries, Holography, and Continuous Symmetry Operators*, [2501.17911].

18. M. Cvetič, R. Donagi, J. J. Heckman, M. Hübner, E. Torres, *Cornering Relative Symmetry Theories*, [2408.12600].

17. J. J. Heckman, M. Hübner, *Celestial Topology, Symmetry Theories, and Evidence for a Non-SUSY D3-Brane CFT*, [2406.08485].

16. N. Braeger, V. Chakrabhavi, J. J. Heckman, M. Hübner, *Generalized Symmetries of Non-Supersymmetric Orbifolds*, [2404.17639].

15. J. J. Heckman, M. Hübner, C. Murdia, *On the Holographic Dual of a Topological Symmetry Operator*, Phys. Rev. D 110 no. 4 (2024) 046007, [2401.09538].

14. F. Baume, J. J. Heckman, M. Hübner, E. Torres, A. P. Turner, X. Yu, *SymTrees and Multi-Sector QFTs*, Phys. Rev. D 109 no. 10 (2023) 106013, [2310.12980].

13. M. Cvetič, J. J. Heckman, M. Hübner, E. Torres, *Generalized Symmetries, Gravity and the Swampland*, Phys. Rev. D 109 no. 4 (2023) 026012, [2307.13027].

12. M. Cvetič, J. J. Heckman, M. Hübner, E. Torres, *Fluxbranes, Generalized Symmetries, and Verlinde's Metastable Monopole*, Phys. Rev. D 109 no. 4 (2023) 046007, [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].

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[1]Authors are ordered alphabetically, following a widely established practice within the HEP-TH community. ArXiv numbers take the form [YYMM.XXXXX] with YY and MM respectively indicating the year and month of the arXiv upload.

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 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].

Invited Talks

March 2025	High Energy Theory Seminar	
Seminar	Durham University, Durham, UK	
February 2025	High Energy Theory Seminar	
Seminar	CERN, Geneva, Switzerland	
January 2025	High Energy Theory Seminar	
Seminar	University of Pennsylvania, Philadelphia, USA	
January 2025	CMSA Workshop on Symmetries and Gravity	
Conference	CMSA, Harvard, Cambridge, USA	
November 2024	High Energy Theory Seminar	
Seminar	University of Kyushu, Fukuoka, Japan	
November 2024	High Energy Theory Seminar	
Seminar	University of Tokyo, Tokyo, Japan	
November 2024	High Energy Theory Seminar	
Seminar	IPMU, Tokyo, Japan	
November 2024	9th IBS-IFT joint workshop: Dark World to Swampland 2024	
Conference	IBS, Daejeon, Korea	

November 2024	High Energy Theory Seminar	
Seminar	KAIST, Daejeon, Korea	
November 2024	High Energy Theory Seminar	
Seminar	KIAS, Seoul, Korea	
October 2024	33rd Nordic Network Meeting on Strings, Fields and Branes,	
Conference	NORDITA, Stockholm, Sweden	
October 2024	Center for Physics and Geometry Series,	
Seminar	Uppsala University, Uppsala, Sweden	
June 2024	Geometries and Symmetries of SCFTS,	
Conference	Mainz Institute for Theoretical Physics (MITP), Mainz, Germany	
June 2024	MPI Seminar,	
Seminar	Max-Planck-Institut, Leipzig, Germany	
May 2024	Swamplandia 2024,	
Conference	Kloster Seeon, LMU Munich, Germany	
February 2024	Swampland Seminar,	
Seminar	Online, Harvard University / CERN / IFT Madrid	
February 2024	Quiver Meeting,	
Seminar	Online, Oxford University, UK	
February 2024	Symmetry Seminar,	
Seminar	Online, Oxford University, UK	
October 2023	High Energy Theory Seminar,	
Seminar	Johns Hopkins University, USA	
October 2023	Harvard Swampland Initiative,	
Seminar	Harvard University, USA	
September 2023	High Energy Theory Seminar,	
Seminar	Texas A&M, USA	
August 2023	Categorical Aspects of Symmetries,	
Conference	Nordita, Sweden	
July 2023	High Energy Theory Seminar,	
Seminar	KIAS, South Korea	
June 2023	High Energy Theory Seminar,	
Seminar	KAIST, South Korea	
May 2023	The Geometry, Algebra, and Physics of Higgs Bundles,	
Conference	University of British Columbia, Canada	
April 2023	Southeastern Regional Mathematical String Theory Meeting,	
Conference	Virginia Tech, United States	
March 2023	Physics and Special Holonomy,	
Conference	UC Santa Barbara, United States	

March 2023 *Conference*	Geometry and Strings 2023, University of Pennsylvania, United States
November 2022 *Seminar*	High Energy Theory Seminar, Northeastern University, United States
September 2022 *Conference*	Simons Collaboration for Special Holonomy in Geometry, Analysis and Physics: Progress and Open Problems, SCGP, United States
September 2022 *Conference*	Simons Collaboration for Special Holonomy in Geometry, Analysis and Physics: Annual Meeting, Flatiron Institute, United States
June 2022 *Conference*	Geometry, Topology and Singular Special Holonomy Spaces, University of Freiburg, Germany
June 2022 *Seminar*	Quiver Meeting, Imperial College London, England
February 2022 *Conference*	Geometrization of (S)QFTs in $D \leq 6$, Aspen Center for Physics, United States
September 2021 *Seminar*	High Energy Theory Seminar, University of Pennsylvania, United States
September 2021 *Conference*	Simons Collaboration for Special Holonomy in Geometry, Analysis and Physics: Progress and Open Problems, SCGP, United States
December 2020 *Seminar*	Seminar Series on String Phenomenology, Online Seminar
December 2020 *Seminar*	High Energy Theory Seminar, City, University of London, England
August 2020 *Conference*	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 − August 2024	Co-organizer for High Energy Theory Seminar Series, University of Pennsylvania
September 2019	Co-organizer for Geometry and Strings (Conference), University of Oxford

Supervision

2023/24	Co-supervision, University of Pennsylvania Graduate Students: Noah Braeger, Vivek Chakrabhavi
June/July 2019	Co-supervision, Summer Studentship Mathematics Oxford, Andrea Rotaru (Wadham College, Oxford)

Reviewing Activities

Referee for SciPost Physics
Referee for JHEP

Outreach

February 2025 *(length: 1 week)*	Workshop Supervisor & Organizer, Roggenburg, Winter Academy of the "Studienstiftung des Deutschen Volkes"

Teaching

University of Pennsylvania

Summer Term 2024	General Relativity

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

Language Skills

German	Fluent, professional proficiency
English	Fluent, professional proficiency