

EIRIK EIK SVANES

University of Stavanger
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EMPLOYMENT AND WORK EXPERIENCE

Associate Professor: University of Stavanger	<i>December 2019 - present</i>
Postdoctoral Fellow: <i>Simons Collaboration on Special Holonomy</i> King's College London and ICTP Trieste	<i>September 2017 - December 2019</i>
Postdoctoral Fellow: <i>Lagrange Fellow</i> Institute Lagrange Paris Laboratoire de Physique Théorique et Hautes Energies	<i>October 2014 - September 2017</i>
Student Tutor and Teaching Assistant Oxford University	<i>Fall 2011 - Fall 2014</i>
Student Assistant Norwegian University of Science and Technology	<i>Fall 2006 - Spring 2010</i>
Summer Intern SINTEF Trondheim Project: <i>Numerical simulations of 2d and 3d fluid dynamical systems</i>	<i>Summer 2009</i>
Summer Intern CERN Geneva Project: <i>Simulations of ATLAS 3d silicon detector</i>	<i>Summer 2008</i>

EDUCATION

University of Oxford DPhil (Phd) in Theoretical & Mathematical Physics Supervisors: Professors Xenia de la Ossa and Andre Lukas	<i>October 2010 - September 2014</i>
Norwegian University of Science and Technology Civil Engineering Degree and M.Sc. in Physics & Mathematics Supervisor: Professor Jens Oluf Andersen	<i>August 2005 - June 2010</i>
University of California at Berkeley Exchange Student	<i>January 2009 - June 2009</i>
CERN Summer School Summer Student	<i>Summer 2008</i>

TEACHING AND SUPERVISION EXPERIENCE

Supervision Experience PhD Students: Javier Murgas (from Fall 2021). Informal co-Supervisor for PhD student Marwan Najjar (2017-2019). Master Students: Beatrice Chisamanga (2022-2023), Sander Winje (2021-2022), Silje Kristin Larsen (Spring 2021). Bachelor Students: Bård Torjussen (Spring 2022), Henrik Ivarsen Jakobsen (Spring 2021).	
University of Stavanger Lecturer for Forkurs: Mathematics: Fall 2020. Lecturer for Abstract Algebra: Spring 2020, Spring 2021, Spring 2022 Lecturer Linear Algebra: Fall 2021, Fall 2022	<i>Spring 2020 - Present</i>

PUBLICATIONS

I list my publications according to date of publication. Note also that in my field of Mathematical and Theoretical Physics, authors are listed alphabetically on papers.

Journal Papers: Refereed

- B. S. Acharya, N. Lambert, M. Najjar, E. E. Svanes, J. Tian**, Gauging discrete symmetries of T_N -theories in five dimensions, JHEP 04 (2022) 114, (arXiv:2110.14441)
- A. Ashmore, A. Coimbra, C. Strickland-Constable, E. E. Svanes, D. Tennyson**, Topological G_2 and $Spin(7)$ strings at 1-loop from double complexes, JHEP 02 (2022) 089, (arXiv:2108.09310)
- B. S. Acharya, L. Foscolo, M. Najjar, E. E. Svanes**, New G_2 -Conifolds in M-theory and their Field Theory Interpretation, JHEP 05 (2021) 250, (arXiv:2011.06998)
- B. S. Acharya, A. Kinsella, E. E. Svanes**, T3-invariant Heterotic Hull-Strominger Solutions, JHEP 01 (2021) 197, (arXiv:2010.07438)
- X. de la Ossa, M. Larfors, M. Magill, E. E. Svanes**, Superpotential of Three Dimensional $N = 1$ Heterotic Supergravity, JHEP 01 (2020) 195, (arXiv:1904.01027)
- B. S. Acharya, A. P. Braun, E. E. Svanes, Roberto Valandro**, Counting Associatives in Compact G_2 Orbifolds, JHEP 1903 (2019) 138 (arXiv:1812.04008)
- A. Ashmore, X. de la Ossa, R. Minasian, C. Strickland-Constable, E. E. Svanes**, Finite deformations from a heterotic superpotential: holomorphic Chern–Simons and an L_∞ algebra, JHEP 1810 (2018) 179 (arXiv:1806.08367)
- M.-A. Fiset, C. Quigley, E. E. Svanes**, Marginal deformations of heterotic G_2 sigma models, JHEP 1802 (2018) 052 (arXiv:1710.06865)
- N. Halmagyi, D. Israel, M. Sarkis, E. E. Svanes**, Heterotic Hyper-Kahler Flux Backgrounds, JHEP 1708, 138 (arXiv:1706.01725)
- X. de la Ossa, M. Larfors and E. E. Svanes**, The infinitesimal moduli space of heterotic G_2 systems, Communications of Mathematical Physics, 2017, pages 1-49 (arXiv:1704.08717)
- C. de Lacroix, H. Erbin, E. E. Svanes**, Minisuperspace computation of the Mabuchi spectrum, Classical and Quantum Gravity 2018, (arXiv:1704.05855)
- R. Minasian, M. Petrini, E. E. Svanes**, On Heterotic Vacua with Fermionic Expectation Values, Fortschritte der Physik 65 (arXiv:1702.01156)
- X. de la Ossa, M. Larfors and E. E. Svanes**, Infinitesimal moduli of G_2 holonomy manifolds with instanton bundles, JHEP 1611, 016 (arXiv:1607.03473)
- N. Halmagyi, D. Israel, E. E. Svanes**, The Abelian Heterotic Conifold, JHEP 1607, 029 (arXiv:1601.07561)
- S. Angus, C. Matti, E. E. Svanes**, $Spin(7)$ Compactifications and 1/4-BPS Vacua in Heterotic Supergravity, JHEP 1603 177 (arXiv:1512.02812)
- C. de Lacroix, H. Erbin, E. E. Svanes**, Mabuchi spectrum from the minisuperspace, Phys.Lett. B758 (2016) 186-189 (arXiv:1511.06150)
- X. de la Ossa, E. Hardy and E. E. Svanes**, The Heterotic Superpotential and Moduli, JHEP 1601, 049 (arXiv:1509.08724)
- S. Grozdanov, D. Kraljic, E. E. Svanes**, Inflationary Potentials from the Exact Renormalisation Group, Nucl.Phys. B909 (2016) 657-676 (arXiv:1508.01484)
- A. Lukas, Z. Lalak and E. E. Svanes**, Heterotic Moduli Stabilisation and Non-Supersymmetric Vacua, JHEP 1508, 020 (arXiv:1504.06978)

X. de la Ossa, M. Larfors and E. E. Svanes, Exploring $SU(3)$ Structure Moduli Spaces with Integrable G_2 Structures, Advances in Theoretical and Mathematical Physics, Volume 19, Number 4, pages 837-903 (arXiv:1409.7539)

X. de la Ossa and E. E. Svanes, Connections, Field Redefinitions and Heterotic Supergravity, JHEP 1412, 008 (arXiv:1409.3347)

X. de la Ossa and E. E. Svanes, Holomorphic Bundles and the Moduli Space of $N=1$ Supersymmetric Heterotic Compactifications, JHEP 1410, 123 (arXiv:1402.1725)

M. Klaput, A. Lukas and E. E. Svanes, Heterotic Calabi-Yau Compactifications with Flux, JHEP 1309, 034 (arXiv:1305.0594)

M. Klaput, A. Lukas, C. Matti and E. E. Svanes, Moduli Stabilising in Heterotic Nearly Kähler Compactifications, JHEP 1301, 015 (arXiv:1210.5933)

J. O. Anderson and E. E. Svanes, Functional renormalization group at finite density and Bose condensation, Nuclear Physics A, Volume 857, Issue 1, 1 May 2011, pages 16-28 (arXiv:1009.0430)

Conference Papers: Refereed

X. de la Ossa, M. Larfors and E. E. Svanes, Restrictions of Heterotic G_2 Structures and Instanton Connections, Proceedings for Nigel Hitchin's 70th Birthday Conference (arXiv:1709.06974)

X. de la Ossa, E. Hardy and E. E. Svanes, The Massless Spectrum of Heterotic Compactifications, Proceedings of "The String Theory Universe" Workshop in Leuven, 7-11 Sept 2015 (arXiv:1511.02812)

TALKS, LECTURES AND SEMINARS

Invited Plenary Talks and Lectures

Geometric Structures and Supersymmetry, University of Tromsø *August 2022*
Partition Functions of Heterotic Potentials

MATRIX workshop on 2D Supersymmetric Theories and Related Topics, Online workshop *January 2022*
Heterotic Moduli without Field Redefinitions

30th Nordic Network Meeting on Strings, Fields, and Branes, Nordita, Stockholm *November 2021*
Moduli and topological field theories: A heterotic case study

Geometric Structures and Supersymmetry, University of Tromsø *August 2021*
Heterotic Moduli without Field Redefinitions

Meeting on String Theory, Geometry and String Model Building, MITP Mainz *September 2018*
Counting Associatives in G_2 manifolds and Non-Perturbative Superpotentials

Workshop on Special Holonomy: Progress and Open Problems 2018, SCGP Stony Brook *September 2018*
String Dualities and an Infinity of Associative Submanifolds

Workshop on Gauge Theory and Special Holonomy, Imperial College London *January 2018*
On marginal deformations of heterotic G_2 geometries

Simons Collaboration on Special Holonomy Annual Meeting, Simons Foundation, New York *September 2017*
On the Coupled Moduli Space of Special Structure Manifolds with Instanton Bundles

Yorkshire and Durham Geometry Day, School of Mathematics, University of Leeds *May 2017*
On Moduli of Instantons on Special Structure Manifolds and Heterotic Solutions

Meeting on Geometry, Gravity and Supersymmetry, Mainz Institute for Theoretical Physics *April 2017*
New Developments in Heterotic Moduli

Workshop on (0,2)-Models, IHP Paris *June 2016*
The Massless Spectrum of Heterotic Compactifications

The String Theory Universe Conference, The University of Bern *September 2013*
Heterotic Supergravity, $SU(3)$ -structures, and the α' -Expansion

Other Recent Conference Presentations

The String Phenomenology Conference , University of Liverpool <i>Partition Functions of Heterotic Potentials</i>	July 2022
The String Phenomenology Conference , CERN <i>Local Heterotic Reductions</i>	June 2019
The String Phenomenology Conference , University of Warsaw <i>Special Lagrangians, Associatives and Non-Perturbative Superpotentials</i>	July 2018
The String Phenomenology Conference , Virginia Tech, Blacksburg Virginia <i>Moduli of Heterotic Backgrounds and their Effective Theories</i>	July 2017
The String Theory Universe Conference , KU Leuven <i>Moduli and the Heterotic Superpotential</i>	September 2015
The String Phenomenology Conference , IFT Madrid <i>Moduli and the Heterotic Superpotential</i>	June 2015

Recent Invited Talks and Seminars

Mathematical Physics Seminar Series , ICTP Trieste, <i>Heterotic Quantum Moduli</i>	March 2022
Exceptional Geometry Seminar Series , Online Seminar Series, <i>Heterotic Moduli without Field Redefinitions</i>	May 2021
Mathematical Physics Seminar , Harvard Mathematics Department, Harvard University, <i>Coupled Moduli Problems, and Effective Topological Theories</i>	September 2019
String Lunch Meeting , Kavli Institute for the Physics and Mathematics of the Universe, Tokyo <i>Counting Associatives in G2 manifolds and Non-Perturbative Superpotentials</i>	December 2018
Mathematics and String Seminar , Kavli Institute for the Physics and Mathematics of the Universe, Tokyo <i>Moduli, Holomorphic Algebroids and Effective Actions</i>	November 2018
Mathematics Seminar , Department of Theoretical Physics and Mathematics, University of Stavanger <i>Holomorphic Algebroids and Deformation Theory</i>	August 2018
Geometry Seminar , School of Mathematics, Leeds University <i>Algebroids and Deformations</i>	July 2018
Theoretical Physics Seminar , Simons Center for Geometry and Physics, Stony Brook <i>Heterotic Moduli and Effective Theories</i>	April 2018

SCIENTIFIC TRAVELS AND VISITS

ICTP, Trieste Scientific Visitor and Postdoc working with Professor Bobby Acharya	September 2017 - December 2019
Kavli IPMU, Tokyo Scientific Visitor of Doctor Marco Bertolini	November 2018 - December 2018
Simons Center for Geometry and Physics, Stony Brook Scientific Visitor of Michele del Zotto	April 2018
CERN, Geneva Short-Term Visitor to CERN Theory Group	July 2016 - August 2016
Perimeter Institute, Waterloo Canada Scientific Visitor of Professor Xenia de la Ossa	March 2012

FELLOWSHIPS AND RESEARCH GRANTS

Yngre Fremragende Forskere Awarded by the University of Stavanger*Awarded February 2022*

A one-year travel grant.

Humboldt Fellow Awarded by the the Alexander von Humboldt Foundation*Awarded July 2017*Postdoctoral research grant to be held at German institution of my choosing,
Declined due to prior commitment with the Simons Collaboration.*Declined***CERN Short-Term Visitor Grant***Awarded May 2016*

Three weeks travel and visitor grant awarded by the CERN theory group.

*Period: July 2016 - August 2016***Lagrange Fellow***Awarded January 2014*

Three year postdoctoral fellowship awarded by Institute Lagrange Paris.

Period: October 2014 - October 2017

AWARDS AND SCHOLARSHIPS**Clarendon Scholar***Awarded April 2010*

Full Scholarship awarded by Oxford University and OUP

Dervorguilla Scholar*Awarded April 2010*

Scholarship awarded by Balliol College, Oxford University.

Best Student in a Civil Engineering or Civil Architecture Program*Awarded September 2011*

Norwegian University of Science and Technology, Class Graduating 2010.

Best Master Thesis*Awarded June 2010*

Norwegian University of Science and Technology, Faculty of Science and Technology

OTHER HONORS**Honour for best TA***Awarded August 2018*

Elected best TA for the year of 2017/2018 by the high energy physics masters students at ICTP Trieste.

REVIEW ASSIGNMENTS**Journal of High Energy Physics***from 2020***Crelle's Journal for Pure and Applied Mathematics***from 2018***The European Physical Journal***from 2018***zbMATH (Zentralblatt MATH)***from 2017***SIGMA: Symmetry, Integrability and Geometry - Methods and Applications***from 2016***Mathematical Reviews, American Mathematical Society***from 2014*

TECHNICAL SKILLS AND LANGUAGES**Computer Languages**

Mathematica, LaTeX, Matlab, Python, Java

Native Language

Norwegian

Professional Fluency

English

Confident Knowledge

Swedish, Danish, German

Basic Knowledge

French

ORGANISATION DUTIES**Organiser of Geometry Seminar***From Fall 2022*

University of Stavanger

Organiser of Geometry Reading Group*From Fall 2022*

University of Stavanger

Organiser of workshop: String Geometry in Stavanger*August 2022*

University of Stavanger

Co-Organiser of String Theory Seminar*Spring 2017*

Laboratoire de Physique Théorique et Hautes Energies and École Normale Supérieure, Paris

OUTREACH AND DISSEMINATION ACTIVITIES

Online seminar on differential equations with applications Rauma VGS.	<i>March 2022</i>
Online seminar on differential equations with applications Drottningborg VGS.	<i>March 2022</i>
Online seminar on differential equations with applications Molde VGS.	<i>March 2021</i>
Discussion on String Theory with Aleksi Kurkela University of Stavanger.	<i>March 2021</i>
Lecturer for “Physics Without Frontiers” program ICTP Trieste and King’s College London.	<i>Spring 2018</i>
Lecture on String Theory for Romanian artists as part of the Art and Science Residence ICTP Trieste	<i>October 2018</i>
Lecture on String Theory for High School Students from Sandvika VGS Institut Astrophysique de Paris	<i>March 2017</i>