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Short Statement of Past Research Activities

I'm a high energy theoretical physicist, researching the area of String theory. My main field of interest is string compactification, focusing on heterotic flux compactifications on spaces of more general $SU(3)$-structure (i.e. non-Calabi-Yau), and also the mathematics related to such spaces. This is the main focus of my Ph.D. research at the moment. Other areas of interest (within String Theory) include the F-theory-heterotic duality, particularly applied to the above mentioned non-Calabi-Yau geometries, and their UV completion in term of torsional gauged linear sigma models.

For my Master thesis at NTNU, my research was focused on the non-Perturbative Renormalization Group and applications of this in QCD. A link to my Master-Thesis may be found here:
http://www2.physics.ox.ac.uk/contacts/people/svanes

Education

Ph.D. Theoretical Physics, October 2010-present.

M.Sc. Physics and Mathematics, Norwegian University of Science and Technology (NTNU), 2005-2010. GPA: 4.91 of possible 5.00.

Exchange student, UC Berkeley, Spring 2009.

CERN Summer School, Summer, 2008.

Graduate courses attended

Oxford

Topology in Field Theory, Hilary 2012.

Calabi-Yau Geometry, Trinity 2011.

String Theory II, Hilary 2011.

Non-Abelian Gauge Theories, Hilary 2011.

Supersymmetry, Hilary 2011.

Quantum Field Theory II, Hilary 2011.

String Theory I, Michaelmas 2010.

Quantum Field Theory I, Michaelmas 2010.

Group Theory for Graduates, Michaelmas 2010.

UC Berkeley

Quantum Field Theory II, Spring 2009.

General Relativity, Spring 2009.

The Standard Model and Beyond, Spring 2009.

Norwegian University of Science and Technology (NTNU)

Algebraic Topology II, Fall 2009.

Calculus on Manifolds, Fall 2009.

Homological Algebra, Fall 2009.

Algebraic Topology I, Fall 2008.

Employment

Student Tutor and Teaching Assistant, Oxford University, fall 2011-present.

Summer Intern, SINTEF, Trondheim, Summer 2009.

Student Tutor, NTNU, Fall 2006-Spring 2010.

Publications

M. Klaput, A. Lukas and E. E. Svanes (2013). *Heterotic Calabi-Yau Compactifications with Flux*. arXiv:1305.0594. Published in: JHEP 1309, 034.

M. Klaput, A. Lukas, C. Matti and E. E. Svanes (2012). *Moduli Stabilising in Heterotic Nearly Kähler Compactifications*. arXiv:1210.5933. Published in: *JHEP*, 1301, 015.

J. O. Anderson and E. E. Svanes (2010). *Functional renormalization group at finite density and Bose condensation*. arXiv:1009.0430. Published in: *Nuclear Physics A*, Volume 857, Issue 1, 1 May 2011, Pages 16-28.

In Preparation

M. Klaput, A. Lukas and E. E. Svanes (2013). *Supergravities of Torsional String Compactifications.*

X. de la Ossa and E. E. Svanes (2013). *Heterotic Supergravity, $SU(3)$-Structures and the α'-Expansion.*

Teaching

Oxford University

Teaching Assistant in Special Relativity, Hilary 2013.

Teaching Assistant in Graduate Group Theory, Michaelmas 2012.

Teaching Assistant in Electrodynamics and Quantum Mechanics, Michaelmas 2012.

Tutor in 3'rd Year Relativity Course at Worcester College, Michaelmas 2012.

Student Tutor in C6, Theory Option (Quantum Field Theory, Solid State Physics, etc.), Academic Year 2011-2012.

Norwegian University of Science and Technology (NTNU)

Student Tutor in Calculus 1, Electromagnetism, Fluid Mechanics, Quantum Mechanics and Atomic and Molecular Physics, Fall 2006- Spring 2010.

Skills, Languages and Abilities

Programming Languages

Can program in: *Mathematica, Matlab, Python, Java, C++, LaTeX.*

Languages

Fluent in: *Norwegian, English*

Know: *German*

Conference and Seminar Presentations

Heterotic Supergrvity, Moduli, and the α'-Expansion, City University London, November 2013.

Heterotic Supergrvity, Moduli, and the α'-Expansion, Queen Mary University of London, November 2013.

Heterotic Supergrvity, SU(3)-structures, and the α'-Expansion, University of Pennsylvania, October 2013.

Heterotic Supergrvity, SU(3)-structures, and the α'-Expansion, Duke String Meeting, Duke University, October 2013.

General non-Kahler Heterotic Compactifications, Domain Walls an Supergravity, Virginia Tech, October 2013.

Heterotic Supergrvity and the α'-Expansion, University of Waterloo, October 2013.

Heterotic Supergrvity and the α'-Expansion, The String Theory Universe, Bern, September 2013.

Heterotic Calabi-Yau Compactifications with Flux, String Phenomenology, DESY, Hamburg, July 2013.

Heterotic Supergravity and the α' expansion, LMU, Munich, July 2013.

Heterotic Calabi-Yau Compactifications with Flux, Bethe institute, Planck Conference, Bonn, May 2013.

Heterotic Calabi-Yau Compactifications with Flux, Journal Club, Dalitz Institute, University of Oxford, May 2013.

The Heterotic String, In collaboration with Michael Klaput and Magdalena Larfors, String Lunch Meeting, Mathematical Institute, University of Oxford, Januar 2013.

The Exact Renormalization Group, String Lunch Meeting, Mathematical Institute, University of Oxford, November 2012.

$SU(3)$-Structures in Heterotic Compactifications, Junior Geometry Seminar, Mathematical Institute, University of Oxford, October 2012

Flux Compactifications of the Heterotic String, String Phenomenology 2012, Isaac Newton Institute for Mathematical Sciences, Cambridge, June 2012.

Moduli Stabilisation of the Heterotic String compactified on Homogeneous Spaces, Theoretical Physics Seminar, Norwegian University of Science and Technology, May 2012

Moduli stabilisation of homogeneous spaces, Dalitz Institute, University of Oxford, February 2012

The F-theory/heterotic Duality in Eight Dimensions, Mathematical Institute, University of Oxford, May 2011

Conferences, Schools and Workshops Attended

Duke String Meeting, Duke University, North Carolina, October 2013.

The String Theory Universe, Bern, September 2013.

Summer School on Moduli Spaces in Algebraic Geometry and Physics, University of Hamburg, August 2013.

String Phenomenology 2013, DESY, Hamburg, July 2013.

Planck Conference 2013, Bethe Institute, Bonn, May 2013.

Spring School on Superstring Theory and Related Topics, ICTP Trieste, March 2013

Summer School on Differential Geometry and Supersymmetry, University of Hamburg, September 2012

International School on Strings and Fundamental Physics, DESY, Hamburg, July 2012.

String Phenomenology 2012, Isaac Newton Institute for Mathematical Sciences, Cambridge, June 2012.

Mathematical Aspects of String and M-theory, Isaac Newton Institute for Mathematical Sciences, Cambridge, January 2012.

String Theory, Geometry, and Mathematical Physics, UK-Japan Winter School, Oxford, January 2012.

Algebraic Geometry for String theorists, Arnold Sommerfeld School, LMU, October 2011.

Honors, Awards, & Fellowships

Clarendon Scholarship, awarded by Oxford University Press, 2010-2013 (42.000 pounds).

Dervorguilla Scholarship, awarded by Balliol College, 2010-2013 (7.500 pounds, in conjucktion with the Clarendon Scholarship).

Award for Best Student in a Civil Engineering or Civil Architecture Program, NTNU, 2005-2010, received September 2011 (6.000 pounds).

Award for Best Master Thesis, Faculty of Science and Technology, NTNU, May, 2010 (1.000 pounds).

Last updated: December 21, 2013