

Curriculum Vitae

Henrik Gustafsson

Postdoctoral Scholar, Stanford University
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Current appointment

Oct, 2017 – **Wallenberg Postdoctoral Scholar**
Sep, 2019 **Stanford University**
Stanford, CA Department of Mathematics
USA Advisor: Daniel Bump

Higher education

Aug 25, 2017 **Doctoral degree**
2013 – 2017 **Chalmers University of Technology**
Gothenburg Degree of Doctor of Philosophy in Fundamental Physics with specialization in
Sweden Mathematical Physics
Thesis title: Automorphic forms and string theory: Small automorphic
representations and non-perturbative effects
Thesis advisor: Daniel Persson (Department of Mathematics, Chalmers)

Dec 14, 2015 **Licentiate degree**
Gothenburg **Chalmers University of Technology**
Sweden Degree of Licentiate of Engineering in Fundamental Physics with specialization
in Mathematical Physics
Thesis title: Automorphic string amplitudes
Thesis advisor: Daniel Persson (Department of Fundamental Physics, Chalmers)

Oct 19, 2012 **Degree of Master of Science in Physics**
2011 – 2012 **Perimeter Institute and University of Waterloo** (degree-granting)
Waterloo, ON Perimeter Scholars International
Canada Thesis title: Minimal Surfaces for Scattering Amplitudes and the Harmonic
Oscillator
Thesis advisor: Pedro Vieira (Perimeter Institute)

- Jun 4, 2013
2010 – 2011,
2012 – 2013
Gothenburg
Sweden
- Degree of Master of Science in Fundamental Physics**
Chalmers University of Technology
Thesis title: Eisenstein Series and Instantons in String Theory
Thesis advisor: Daniel Persson (Fundamental Physics, Chalmers)
- Jun 1, 2010
2007 – 2010
Gothenburg
Sweden
- Degree of Bachelor of Science in Engineering Physics**
Chalmers University of Technology
Thesis title: Geometry, Topology and Physics
Thesis advisor: Per Salomonson (Fundamental Physics, Chalmers)

Recent awards

- 2017
- The Wallenberg Foundation Postdoctoral Scholarship at Stanford University**
Awarded a two-year postdoctoral scholarship at the Department of Mathematics, Stanford University. The scholarship is awarded to outstanding young Swedish scientists in all disciplines of science.
- <https://kaw.wallenberg.org/en/calls/wallenberg-foundation-postdoctoral-scholarship-program-stanford-university>
- 2014
- John Ericsson medal**
Each year Chalmers University of Technology awards six newly graduated students with the John Ericsson medal based on performance. The six recipients were chosen from 750 Master of Science students that graduated from Chalmers in 2013.
- 2013–2017
- Travel/conference grants**
I have also been awarded various travel and conference grants from the following Swedish foundations:
- Stiftelsen Wilhelm och Martina Lundgrens vetenskapsfond
 - Stiftelsen Karl och Annie Leons minnesfond för vetenskaplig forskning
 - Stiftelsen Lars Hiertas minne
 - Stiftelsen Längmanska kulturfonden

Publications

As is customary in my field, authors are listed in alphabetical order.

- Book will be in print July, 2018 **Eisenstein series and automorphic representations**
Philipp Fleig, HG, Axel Kleinschmidt, Daniel Persson
Cambridge Studies in Advanced Mathematics, Cambridge University Press
ISBN 9781107189928, http://www.cambridge.org/core_title/gb/502216
[arXiv:1511.04265](https://arxiv.org/abs/1511.04265) [math.NT]
- 2018 **Vertex operators, solvable lattice models and metaplectic Whittaker functions**
Ben Brubaker, Valentin Buciumas, Daniel Bump, HG
[arXiv:1806.07776](https://arxiv.org/abs/1806.07776) [math.RT]
- 2018 **Fourier coefficients attached to small automorphic representations of $SL_n(\mathbb{A})$**
Olof Ahlén, HG, Axel Kleinschmidt, Baiying Liu, Daniel Persson
Journal of Number Theory (2018)
<https://doi.org/10.1016/j.jnt.2018.03.022>
[arXiv:1707.08937](https://arxiv.org/abs/1707.08937) [math.RT]
- 2017 **Automorphic forms and string theory**
Small automorphic representations and non-perturbative effects
Henrik P. A. Gustafsson
PhD Thesis, Chalmers University of Technology
<https://research.chalmers.se/en/publication/?id=250854>
- 2016 **Small automorphic representations and degenerate Whittaker vectors**
HG, Axel Kleinschmidt, Daniel Persson
Journal of Number Theory 166 (Sep, 2016) 344–399
<https://doi.org/10.1016/j.jnt.2016.02.002>
[arXiv:1412.5625](https://arxiv.org/abs/1412.5625) [math.NT]
- 2015 **Automorphic string amplitudes**
Henrik P. A. Gustafsson
Licentiate Thesis, Chalmers University of Technology
<https://research.chalmers.se/en/publication/?id=226156>
- 2013 **Eisenstein Series and Instantons in String Theory**
Author: Henrik P. A. Gustafsson, Supervisor: Daniel Persson (Chalmers)
Master Thesis, Chalmers University of Technology
<http://studentarbeten.chalmers.se/publication/178059>

2012 **Minimal Surfaces for Scattering Amplitudes and the Harmonic Oscillator**
 Author: Henrik P. A. Gustafsson, Supervisor: Pedro Vieira (Perimeter Institute) *Master Thesis, Perimeter Institute and University of Waterloo*

To appear

2018 **Fourier coefficients and next-to-minimal automorphic representations**
 Dmitry Gourevitch, HG, Axel Kleinschmidt, Daniel Persson, Siddhartha Sahi

Invited talks

Please see hgustafsson.se/talks for titles, abstracts, slides and more information.

2017-12-20	Chalmers, Gothenburg	<i>Algebraic Geometry and Number Theory Seminar</i>
2017-07-18	KIAS, Seoul	<i>Four lectures during the program Arithmetic Geometry and Quantum Field Theory</i>
2017-01-30	Oxford	<i>String theory seminar</i>
2016-12-06	AEI, Potsdam	<i>Seminar</i>
2016-11-15	ULB, Brussels	<i>HEP seminar</i>
2016-11-03	DAMTP, Cambridge	<i>String theory seminar</i>
2016-10-11	IPhT Saclay, Paris	<i>Séminaire de matrices, cordes et géométries aléatoires</i>
2016-10-05	Stanford (SITP)	<i>SITP seminar</i>
2016-10-04	Stanford (math dep.)	<i>Representation theory seminar</i>
2016-09-30	Rutgers, New Brunswick	<i>Lie Group/Quantum Mathematics Seminar</i>
2016-09-14	Simons Center, Stony Brook	<i>Program: Automorphic forms, mock modular forms and string theory</i>
2016-01-26	Rutgers, New Brunswick	<i>Number Theory Seminar</i>
2015-06-22	Strings 2015, Bangalore	<i>Poster session</i>
2015-06-11	Advanced Strings School, Bangalore	<i>Gong-show</i>
2015-03-17	AEI, Potsdam	<i>Seminar</i>
2015-03-10	Chalmers, Gothenburg	<i>Fundamental physics group seminar</i>

Recent workshops, conferences and doctoral schools

- 2017-10 **Automorphic forms, mock modular forms and string theory**
BIRS, Banff
- 2017-07 **Arithmetic Geometry and Quantum Field Theory**
KIAS, Seoul
- 2016-08 – 2016-10 **Automorphic forms, mock modular forms and string theory**
Simons Center, Stony Brook
- 2016-06 **String-Math 2016**
Collège de France, Paris
- 2016-05 **Number theory and physics workshop**
Institut Henri Poincaré, Paris
- 2016-05 – 2016-06 **Program on the mathematics of string theory**
Institut Henri Poincaré, Paris
- 2015-06 **Strings 2015**
International Centre for Theoretical Physics, Bangalore
- 2015-06 **Advanced Strings School 2015**
Indian Institute of Science, Bangalore
- 2014-09 **Journées de Physique Mathématique Lyon**
BPS States, Hitchin Systems, and Quivers
University of Lyon
- 2014-06 **Strings 2014**
Princeton University and the Institute for Advanced Study, Princeton
- 2014-06 **Prospects of Theoretical Physics**
Institute for Advanced Study, Princeton
- 2013-09 – 2013-12 **Amsterdam-Brussels-Paris Doctoral School**
*Solvay Institutes (Brussels), École Normale Supérieure (Paris),
University of Amsterdam*
- 2013-06 **Strings 2013**
Sogang University, Seoul
- 2013-06 **String-Math Conference**
Simons Center, Stony Brook
- 2013-03 **Spring School on Superstring Theory and Related Topics**
ICTP, Trieste
- 2013-02 **CERN Winter School on Supergravity, Strings and Gauge Theory**
CERN, Geneva

Teaching

- 2017-07
KIAS
Seoul
- Lecture series**
Invited for four blackboard lectures titled Automorphic Forms and String Theory for the CMC Thematic Program on Arithmetic Geometry and Quantum Field Theory.
- 2017
Chalmers
Gothenburg
- Development of web-based platform for E-learning**
I was part of a team that is developing an e-learning platform used in classical mechanics courses at the Department of Physics.
- Work tasks included planning and development of the web-based system as well as designing exercises with a lot of interaction with the students.*
- 2013 – 2017
Chalmers
Gothenburg
- Courses taught during PhD - TA**
Special relativity, Quantum mechanics (master's students), Classical mechanics, Calculus and Advanced calculus.
- Work tasks included careful preparations of notes and solutions, demonstrations of exercises and theorems on the blackboard, answering questions, and constructing and grading assignments and exams.*
- 2009-09 – 2011-06
Chalmers
Gothenburg
- Amanuensis - TA**
Teaching assistant while continuing own studies.
Department of Mathematical Sciences.
20 percent part time employment.
Calculus and Linear Algebra, undergraduate level.
- Work tasks included careful preparations of notes and solutions, demonstrations of exercises and theorems on the blackboard, answering questions, providing personal support, supervising and grading mid-term tests and giving general math support at the university library.*