

Curriculum Vitae – Christian Hagendorf

Personal Information

Christian Hagendorf

Chargé de cours à l'Université Catholique de Louvain

Born: July 1st, 1982, Lutherstadt Wittenberg
Nationality: German



Contact information:

Institut de Recherche en Mathématique et Physique
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Academic appointments

- 09/2013 Chargé de cours**, Institut de Recherche en Mathématique et Physique, Université Catholique de Louvain, Belgium. Permanent academic member.
- 09/2011 – 08/2013 Postdoctoral researcher**, Section de Mathématiques, Université de Genève, Switzerland. Group of Stanislav Smirnov.
- 09/2010 – 08/2011 General member** of the Kavli Institute for Theoretical Physics, Santa Barbara, CA, United States (on leave from the University of Virginia).
- 10/2009 – 08/2011 Research associate** at the Department of Physics, University of Virginia, VA, United States. Group of Paul Fendley.

Education

- 2006 – 2009 Ph.D.** at the Laboratoire de Physique Théorique de l'Ecole Normale Supérieure and Université Pierre et Marie Curie Paris VI, France, supervisors: Pierre Le Doussal and Kay Wiese.
- 2003 – 2006 BSc. & MSc.** from the Ecole Normale Supérieure Paris & Université Pierre et Marie Curie Paris VI, France.
- 2003 Admission to the Ecole Normale Supérieure Paris.** Boursier international, admission through the *Sélection internationale*.
- 2001 – 2003 German undergraduate diploma 'Vordiplom'** from the Martin-Luther-Universität Halle-Wittenberg, Germany.
- 2000-2001 Civilian service** Conscientious objector to military service.
- 2000 A-level** Heidegymnasium Pretzsch, Germany, with honors from the German Physical Society, and the Max-Planck-Institute for Complex Systems, Dresden.

Honors

- 2015** Belgian FSR Grant 2015-2017 for Ph.D. position of Jean Liénardy.
- 2013** Qualification aux fonctions de maître de conférences
- 2006–2009** Allocation couplée: Ph.D. scholarship of the French Ministère de l'Enseignement Supérieur et de la Recherche
- 2003–2006** Scholarship de la Sélection Internationale de l'Ecole Normale Supérieure Paris

Scientific interests

My research focus is statistical mechanics, in particular low-dimensional systems and models admitting exact solutions:

- Exactly solvable systems in 2d statistical mechanics, integrability and integrable spin chains. Supersymmetric lattice models. Relations to combinatorics.
- Conformal field theory and Schramm-Loewner evolutions, applied to critical systems in 2d statistical mechanics. Random growth processes, stochastic processes.
- Disordered systems, 1d random Hamiltonians and their relation to classical diffusion in random environments.

Complete list of A. Peer-reviewed articles : publications

1. C. Hagendorf *The nineteen-vertex model and alternating sign matrices*. J. Stat. Mech. (2015) P01017.
2. C. Hagendorf, T.B. Fokkema, and L. Huijse *Bethe-ansatz solvability and supersymmetry in the M_2 model of interacting fermions and pairs*. J. Phys. A: Math. Theor. **47** (2014) 485201
3. C. Hagendorf *Spin chains with dynamical lattice supersymmetry*. J. Stat. Phys. **150** (2013) 609-657.
4. M. Beccaria and C. Hagendorf *A staggered fermion chain with supersymmetry on open intervals*. J. Phys. A: Math. Theor. **45** (2012) 365201
5. C. Hagendorf and P. Fendley, *The eight-vertex model and lattice supersymmetry*. J. Stat. Phys. **146** (2012) 1122-1155.
6. P. Fendley and C. Hagendorf, *Ground state properties of a supersymmetric fermion chain*. J.Stat.Mech. (2011) P02014
7. P. Fendley and C. Hagendorf, *Exact and simple results for the XYZ and strongly interacting fermion chains*. J. Phys. A: Math. Theor. **43** (2010) 402004.
8. C. Hagendorf, D. Bernard and M. Bauer, *The Gaussian free field and SLE_4 on doubly connected domains*. J. Stat. Phys. **140** (2010) 1-26.
9. C. Texier and C. Hagendorf, *Effects of boundaries on the spectrum of a one-dimensional random mass Dirac hamiltonian*. J. Phys. A: Math. Theor. **43** (2010) 025002.
10. C. Texier and C. Hagendorf, *One-dimensional classical diffusion in a random force field with weakly-concentrated absorbers*, Europhys. Lett. **86** (2009) 37011.
11. C. Hagendorf, *A generalization of Schramm's formula for SLE_2* . J. Stat. Mech. (2009) P02033.
12. P. Calabrese, C. Hagendorf and P. Le Doussal, *Time evolution of 1D gapless models from a domain-wall initial state: SLE continued?*, J. Stat. Mech. (2008) P07013.
13. C. Hagendorf and C. Texier, *Breaking supersymmetry in a one-dimensional random Hamiltonian*. J. Phys A.: Math. Theor. **41** (2008) 405302.
14. C. Hagendorf and P. Le Doussal, *SLE on doubly-connected domains and the winding of loop-erased random walks*. J. Stat. Phys. **133** (2008) 231.
15. F. David, C. Hagendorf and K. Wiese, *A growth model for RNA secondary structures*. J. Stat. Mech. (2008) P04008.
16. F. David, C. Hagendorf and K. Wiese, *Random RNA under tension*. Europhys. Lett. **78** (2007) 68003.

B. Preprints:

1. C. Hagendorf and A. Morin-Duchesne, *Symmetry classes of alternating sign matrices in the nineteen-vertex model*. arXiv:1601.01859 (2016)
2. L. Huijse and C. Hagendorf, *On the ground states of the M_ℓ models*. arXiv:1509.08879 (2015)

C. Ph.D. thesis:

Evolutions de Schramm-Loewner et théories conformes; Deux exemples de systèmes désordonnés de basse dimension

Université Pierre et Marie Curie Paris VI, 2009, available online on TEL (thèses-en-ligne): <http://tel.archives-ouvertes.fr/tel-00422366/en/> (manuscript in french)

Invited talks

- 04/2016** Séminaire des Probabilités, Université de Genève, Switzerland.
- 03/2016** *Six-vertex model, dimers, shapes, and all that*, Simmons Center, SUNY, Stony Brook, United States.
- 12/2015** Theoretical Physics colloquium, Katholieke Universiteit Leuven, Belgium.
- 04/2015** PAI Meeting, Katholieke Universiteit Leuven, Belgium.
- 06/2014** *Integrability and Combinatorics 2014 – Stroganov Memorial Conference*, Presqu'île des Giens, France.
- 05/2014** *When the M meets the P at IRMP*, Université Catholique de Louvain, Belgium.
- 05/2014** *Statistical Physics and Low-Dimensional Systems*, Pont-à-Mousson, France.
- 04/2014** Mathematical Physics Seminar, Glasgow University, UK.
- 12/2013** *Workshop on Combinatorial Physics*, Cardiff University, UK.
- 03/2013** Séminaire de Physique Statistique, Institut Jean Larmor, Nancy, France.
- 02/2013** Séminaire de Physique Mathématique, IPhT, Saclay, France.
- 01/2013** Séminaire de Physique Théorique, Université de Tours, France.
- 01/2013** Séminaire du Laboratoire de Physique Théorique des Modèles Statistiques, Université Paris-Sud, France.
- 12/2012** Quantum Field Theory Seminar, Humboldt Universität zu Berlin, Germany.
- 12/2012** Séminaire de Physique Théorique, LPTENS, Paris, France.
- 06/2012** *Conformal Invariance, Discrete Holomorphicity and Integrability*, Helsinki, Finland.
- 05/2012** Séminaire 'Groupes de Lie et Espaces de Modules', Université de Genève, Switzerland.
- 04/2012** 16th UK meeting on Integrable Models, Conformal Field Theory and related Topics, York, UK.
- 04/2012** Mathematical Physics Seminar University of Edinburgh/Heriot-Watt University, UK.
- 06/2011** Séminaire du Laboratoire de Physique des Hautes Energies, Université Pierre et Marie Curie, Paris, France.
- 06/2011** Condensed Matter Theory seminar, Institute voor theoretische Fysica, Universiteit van Amsterdam, The Netherlands.

- 03/2011 Seminar at Princeton Center for Theoretical Sciences, Princeton University .
- 03/2011 Condensed Matter Theory Seminar, James Franck Institute, University of Chicago.
- 01/2011 Q-Seminar, Microsoft Station Q, University of California, Santa Barbara.
- 05/2010 *Conformal maps from probability to physics*, Ascona, Italy.
- 03/2010 Séminaire du Laboratoire de Physique Théorique des Modèles Statistiques, Université Paris-Sud, France.
- 02/2010 Les Houches *Physics in the plane: from condensed matter to string theory*, Les Houches, France.
- 04/2009 Séminaire général du Laboratoire de Physique Théorique des Modèles Statistiques, Université Paris-Sud, France.
- 02/2009 Séminaire de Physique Mathématique, Université Catholique du Louvain, Belgium.
- 01/2009 CMT Forum, Rudolf Peierls Institute for Theoretical Physics, Oxford, United Kingdom.
- 02/2008 Theoriekolloquium Martin-Luther Universität Halle Wittenberg, Germany.

- Conferences & Schools & Short-term visits**
- 05/2015 *Workshop on Integrability and Combinatorics*, Galileo Galileo Institute for Theoretical Physics, Florence, Italy.
- 01/2015 Stanford Institute for Theoretical Physics, Stanford University, CA.
- 01/2014 Stanford Institute for Theoretical Physics, Stanford University, CA.
- 02/2013-03/2013 *Conformal geometry*, Simons Center for Geometry and Physics, Stony Brook, NY.
- 02/2013 *Two-dimensional statistical mechanics*, Les Diablerets, Switzerland.
- 02/2012 *Random matrices and integrable systems*, Ecole de Physique des Houches.
- 05/2011 *Vicious walkers and random matrices*, Ecole de Physique des Houches.
- 05/2010 *Conformal maps from probability to physics*, Ascona, Italy.
- 09/2007 *Path Integrals: New Trends and Perspectives*, Max-Planck-Institute for Physics of Complex Systems, Dresden, Germany.
- 08/2007 *Predoctoral School on Statistical Physics*, Ecole de Physique des Houches.
- 10/2006–11/2006 *Workshop Stochastic Geometry and Field Theory: From Growth Phenomena to Disordered Systems*, Kavli Institute for Theoretical Physics, USCB, CA.

Teaching

A. Teaching at the Université Catholique de Louvain :

Courses:

- LMAT1261 Analytical mechanics 2
- LPHY1224 Mathematical Methods for Physicists (with C. Ringeval)
- LPHY1251 Thermodynamics and statistical physics 1 (with H. Goosse)
- LPHY1351 Thermodynamics and statistical physics 2
- LPHY2212 Advanced mathematical physics (conformal field theory, with P. Ruelle)

Master students:

- Jean Liénardy "Chaines de spins avec supersymétrie dynamique: états fondamentaux et cohomologies" (2014-15)
- Thomas van Himbeek "Théorie de jauge en géométrie courbe et non-commutative" (2014-15, as secondary promotor; main promotor: Axel de Goursac, IRMP)
- Barthélemy Houben "Application du modèle à six vertex à la combinatoire des matrices à signes alternants" (2013-14)

B. Teaching prior to appointment at the Université Catholique de Louvain

2012 – 2013 Complex Analysis and Linear Algebra Exercise classes for Mathematicians (University of Geneva).

2011 – 2012 Undergraduate Analysis and Statistics Exercise classes for Mathematicians (University of Geneva).

2006 – 2009 Undergraduate classes Elementary calculus & Probability (introductory courses for biologists at the Université Pierre et Marie Curie), Optics and atomic physics (for first year students at the Ecole Normale Supérieure).

Popular science activities **2007 JGW Schülerakademie** Summer school for talented high school students: mini course on modern atomic physics, cold atoms and Bose-Einstein condensates.

Language skills **German:** mother tongue. **English & French:** fluent. **Italian & Russian:** beginner level.