

Curriculum Vitae

Jean-Sébastien Caux

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Nationality: Canadian
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CURRENT EMPLOYMENT

**Instituut voor Theoretische Fysica,
Universiteit van Amsterdam**
Hoogleraar (Full Professor)
Theory of Low-Dimensional Quantum Codensed Matter
since April 2012.

RESEARCH INTERESTS

My research interests are centered on the physics of strongly interacting many-body quantum systems including cold atomic gases, quantum spin systems, quantum dots and wires. The overall goal is to develop new nonperturbative theoretical methods for the calculation of experimentally relevant quantities.

My main recent contributions have been the development of the ABACUS approach for dynamical correlation functions of integrable models, which has been applied to spin chains and atomic gases, and to have developed integrability-based tools relevant to the field of out-of-equilibrium quantum systems, in particular the Quench Action formalism.

Keywords

- **Condensed matter theory:** strongly-correlated systems, low-dimensional physics, disordered systems, spin chains, carbon nanotubes, atomic gases and condensates, quantum dots and wires.
- **Mathematical physics:** integrable models, conformal field theory, bosonization, (nonlinear) Luttinger liquids, supersymmetry.
- **Computational methods:** Python (+ Django), C++ and D programming, parallelization (MPI, OpenMP).

Publications

See list on arxiv.org.

Talks

See list on my website.

PREVIOUS EMPLOYMENT

- 04/07 - 03/12 **Instituut voor Theoretische Fysica,
Universiteit van Amsterdam**
Universitair HoofdDocent (UHD) (Associate Professor)
- 01/03 - 04/07 **Instituut voor Theoretische Fysica,
Universiteit van Amsterdam**
FOM Springplanker (research associate)
- 10/99 - 12/02 **All Souls College, University of Oxford**
Postdoctoral Research Fellow
- 9/98 - 08/99 **UBC, Vancouver**
Postdoc

UNIVERSITY EDUCATION

- 10/94 - 10/6/98 **University of Oxford**
D.Phil. Theoretical Condensed Matter Physics
St John's College
Supervisor: Prof. A. M. Tsvelik
Title of Thesis: "Multifractality for Disordered Fermions: from a
Logarithmic Conformal Field Theory to an Exact Solution"
(defended 10/06/1998; degree ceremony 24/11/2001)
- 9/91 - 21/6/94 **Université de Montréal**
B. Sc. Physics

MAIN PERSONAL RESEARCH FELLOWSHIPS OBTAINED

- 01/03 - 12/07 FOM Springplanker
- 06/04 - 09/04 CNRS: Chercheur Associé (Lyon)
- 10/99 - 12/02 Five-year Postdoctoral Research Fellowship
All Souls College, Oxford
- 9/98 - 8/99 NSERC Canada Postdoctoral Fellowship

AWARDS AND SCHOLARSHIPS

- 10/94 - 9/98 NSERC Canada 1967 Scholarship
- 10/94 - 9/97 Rhodes Scholarship
- 1993 Award of the Dean, Faculty of Arts & Sciences, U. de Montréal
- 1992 & 1993 Rose Daoust-Duquette Award, U. de Montréal

1991 - 1994 Canada Scholarship, U. de Montréal

MAIN PERSONAL RESEARCH GRANTS OBTAINED

- 09/17 - 08/23 **ERC Advanced Grant**
 “Dynamics of probed, pulsed, quenched and driven integrable quantum systems”
 (244k€ for PI, postdoc & student salaries)
- 09/14 - 08/19 **FOM Projectruimte**
 “From Newton’s cradle to Gibbs’s grave”
 (390k€ for postdoc & student salaries)
- 09/11 - 08/16 **NWO VICI grant**
 “Bethe liquids: a new way of tackling strong correlations in and out of equilibrium”
 (1514k€ for PI, postdoc & student salaries)
- 09/11 - 08/16 **FOM Grant**
 “Nonlinear Luttinger liquid response functions”
 (part of new FOM program “The singular physics of 1D electrons”)
 (234k€ for student salary, part of 2335k€ total for program)
- 09/09 - 08/13 **FOM Projectruimte**
 “A new launch pad for renormalization”
 (355k€ for postdoc & student salaries)
- 09/08 - 08/12 **FOM Projectruimte**
 “Cracking the quantum quench”
 (335k€ for postdoc & student salaries)
- 09/05 - 08/08 **FOM Grant (within existing CCSPP Program)**
 “The challenges of the chiral metal”
 (180k€ for postdoc salaries)

PARTICIPATION IN OTHER COLLABORATIVE GRANTS

- 2011-2015 Partner investigator in the International Research Staff Exchange Scheme
 “Quantum Integrability, Conformal Field Theory and Topological Quantum Computation” (QICFT)
 (Coordinator: Prof. G. Mussardo (SISSA))
- 2011-2013 Partner Investigator on Australian Research Council (ARC)
 Discovery Projects Grant “Quantum equilibration”
 (Chief investigator: Dr K. Kheruntsyan, U. of Queensland)
- 2005-2010 Participating researcher in the European Science Foundation
 Research Networking Programme “INSTANS” (Interdisciplinary
 Statistical and Field Theory Approaches to Nanophysics
 and Low Dimensional Systems)
 (Coordinator: Prof. G. Mussardo (SISSA))

OTHER ACTIVITIES**Publishing:**

Founder and Chairman of SciPost, a not-for-profit foundation running <https://scipost.org>, a scientific publication initiative run by and for professional scientists. As developer-in-chief I am also responsible for the development, implementation and maintenance of the infrastructure behind the initiative.

Plan S ambassador (2019-).

Member of the Governing Board of the Free Journal Network , infrastructure portfolio (2020-).

Member of the Advisory Board of Radboud University Press (2023-).

Member of the Open Science NL Advisory Panel on Open Scholarly Communication (2024-).

Institutional responsibilities:

Coordinator of the Master's in Physics and Astronomy, track Theoretical Physics (2015-2018).

International committees:

Chairman of the ERC Starting Grant PE2 Panel (2022). PE2 panel member in 2016, 2018, 2020.

National committees:

Member of the FOM COMOP (condensed matter and optical physics) commission (2013-01-01 to 2018-12-31; chairman from 2017-2019).

Member of the Governing Board of the Dutch Research School of Theoretical Physics (2023-).

Refereeing:

Referee for international journals, among which SciPost, Science, Nature (Physics), Physical Review Letters, Physical Review A and B, Journal of Statistical Mechanics, Journal of Physics A, Europhysics Letters.

Referee for national funding agencies such as NWO (NL), the National Science Foundation (USA), HCERES and Agence Nationale de Recherche (France), EPSRC (U.K.).