

Zahabi, Ali

Ali Zahabi

Ph.D., Postdoctoral Researcher

Research Interests

Research plan

Interplay between High Energy Physics (Quantum Field Theory & String Theory) and Low Energy Physics (Statistical Physics):

-(Boundary) Conformal Field Theory applied in: i) 2D Lattice Models and Schramm-Loewner Evolution (SLE), ii) String Theory and D-branes.

-Non-perturbative Quantum Field Theory and String Theory: I am currently studying i) (AdS/CFT) Dualities, ii) Crystal Melting-Dimer Model and Its Relation to SUSY Gauge Theory-Topological String Theory-Brane Tiling.



Publications

Articles

- 1) A. Zahabi, Physical Dimer Model and Quiver Gauge Theories, in preparation.
- 2) R. Szabo and A. Zahabi, Microscopic Entropy of Crystal Black Holes, in preparation.
- 3) A. Zahabi, New Phase Transitions in Chern-Simons Matter Theory, (2015), [Nucl. Phys. B 903, 78-103, \(2016\)](#), [preprint](#), [arXiv: 1505.00673](#)
- 4) A. Zahabi, Vertex Operator Algebra, Conformal Field Theory and Stochastic Loewner Evolution in Ising Model, (2013), [preprint](#), [arXiv: 1505.01405](#)
- 5) C. Hongler, K. Kytölä and A. Zahabi, Discrete Holomorphicity and Ising Model Operator Formalism, *Contemporary Mathematics* 644, 79-115, (2015), [arXiv: 1211.7299](#).
- 6) Y. Sasai, A. Zahabi, Shear Viscosity of a Highly Excited String and Black Hole Membrane Paradigm, *Phys. Rev. D* 83, 026002 (2011), [arXiv: 1010.5380](#).
- 7) M. Långvik, A. Zahabi, On Finite Noncommutativity in Quantum Field Theory, *Int. J. Mod. Phys. A* 25, 2955 (2010), [arXiv: 1002.0956](#).
- 8) M. Chaichian, A. Tureanu, A. Zahabi, Solution of the Stochastic Langevin Equations for Clustering of Particles in Random Flows in Terms of Wiener Path Integral, *Phys. Rev. E* 81, 066309 (2010), [arXiv: 0906.1376](#).

Thesis

- 9) A. Zahabi, The Comparison of Renormalization Group Theory in Continuum Space and on the Lattice, Triviality of ϕ^4 in Quantum Field Theory, M.Sc. thesis, (2008)
- 10) A. Zahabi, Applications of Conformal Field Theory and String Theory in Statistical Systems, Ph.D. thesis, (2013), [Thesis.pdf](#)

Teaching

Teacher Assistant in Multi-Scale methods, Department of Mathematics, University of Helsinki, Fall 2011

Useful Books

Contact information

Room: B428
Address: P.O. Box 68 (Gustaf Hällströmin katu 2b)
FI-00014 University of Helsinki
Telephone: +358-9-191
Email: seyedali.zahabi(at)helsinki.fi