Joonas Turunen
University of Iceland
Citizenship: Finnish

Academic **C**V
10 September 2020

POSITIONS

Researcher (since 8/2020 postdoctoral), University of Iceland, Science Institute, Mathematic division, 2/2020-9/2020
Postdoctoral research sponsored by Prof. Sigurður Örn Stefánsson within the project “Scaling limits of random enriched trees” funded by the Icelandic Research Fund.

Doctoral student, University of Helsinki, Department of Mathematics and Statistics, 1/2015-1/2020
Doctoral research in mathematics under the supervision of Prof. Antti Kupiainen and Prof. Konstantin Izyurov in the mathematical physics group. My thesis is about the geometry of random planar maps of the half-plane coupled to Ising model partition functions. It includes contributions to random geometry in the discrete level outside the pure gravity universality class, also containing some rigorous scaling limits which have interpretations in Liouville Quantum Gravity.

EDUCATION

Doctor of Philosophy (PhD), University of Helsinki, 2015-2020
Programme: Doctoral Programme of Mathematics and Statistics (DOMAST); *thesis:* ”On Ising Model Coupled to Random Planar Triangulations”, defended on 30 June 2020 with grade *Pass with Distinction*. Degree conferred on 8 September 2020.

Master of Science, University of Helsinki, 2013-2014
Major: mathematics; *master's thesis: ”*On random planar maps and their scaling limits”.

Bachelor of Science, University of Helsinki, 2010-2013
Major: mathematics; *minors:* theoretical physics, computer science.

(PRE)PUBLICATIONS

Interfaces in the vertex-decorated Ising model on random triangulations of the disk, 2020. *Preprint.* arXiv:2003.11012.

Ising model on random triangulations of the disk: phase transition (with Linxiao Chen), 2020. *Preprint.* arXiv:2003.09343.

Critical Ising model on random triangulations of the disk: enumeration and local limits (with Linxiao Chen), 2019. *Commun. Math. Phys.* **374**, 1577–1643 (2020). DOI: 10.1007/s00220-019-03672-5, arXiv:1806.06668.

TALKS

Ising model on random triangulations of the half-plane, Bernoulli-IMS One World Symposium 2020, 20 August 2020

Ising model on random triangulations of the half-plane, Random Trees and Graphs Summer School, CIRM, 4 July 2019

Critical Ising model on infinite random triangulation of the half-plane, Young Researchers Symposium at ICMP 2018, McGill University, 20 July 2018

Critical Ising model on random triangulations of the disk: enumeration and limits, RGM follow up, Isaac Newton Institute, Cambridge, 13 July 2018

Introduction to two-dimensional random geometry, Students' seminar, Department of Mathematics and Statistics, University of Helsinki, 9 November 2017

Critical Ising model on infinite random triangulation of the half-plane, Mathematical physics seminar, University of Geneva, 16 October 2017

Boltzmann triangulations with Ising model on faces, Stochastics and statistics seminar, Department of Mathematics and Systems Analysis, Aalto University, 3 October 2016

Boltzmann triangulations with Ising model on faces, 46th Probability Summer School Saint-Flour, Saint-Flour, 14 July 2016

Boltzmann triangulations with Ising model on faces, Mathematical physics seminar, Department of Mathematics and Statistics, University of Helsinki, 13 April 2016

Introduction to analytic combinatorics, Students' seminar, Department of Mathematics and Statistics, University of Helsinki, 11 February 2016

A bijection between labelled plane trees and rooted and pointed planar quadrangulations, Seminar on stochastic models, Department of Mathematics and Statistics, University of Helsinki, 5 March 2015

POSTER PRESENTATIONS

XIX International Congress on Mathematical Physics (ICMP 2018), Montréal, 23 – 28 July 2018

RGM follow up, Isaac Newton Institute, 9 – 13 July 2018

A Mini-school on Random Maps and the Gaussian Free Field, ENS de Lyon, 15 – 19 May 2017

Workshop on Enumerative Geometry, IHP, 13 – 17 March 2017

Combinatorics and interactions, Introductory school at CIRM, 9 – 13 January 2017

RESEARCH VISITS

Institut Henri Poincaré, Scientist in Residence during the trimester *Combinatorics and Interactions*, 13 January – 31 March 2017

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PARTICIPATION IN CONFERENCES AND SCHOOLS

Random Trees and Graphs Summer School, CIRM, 1 – 5 July 2019

Random maps and matrices from a geometric perspective, ENS de Lyon, 20 – 24 May 2019

États de la recherche SMF : Statistical mechanics, IHP, 10-14 December 2018

Celebration of Mathematics: 150 Years of the Finnish Mathematical Society, University of Helsinki, 30 November – 2 December 2018

XIX International Congress on Mathematical Physics (ICMP 2018) and Young Researchers Symposium, Montréal, 20 – 28 July 2018

RGM follow up, Isaac Newton Institute, 9 -13 July 2018

Dynamics on Random Graphs and Random Maps, CIRM, 23 -27 October 2017

A Mini-school on Random Maps and the Gaussian Free Field, ENS de Lyon, 15 -19 May 2017

Combinatorics and interactions, CIRM & IHP, 9 January – 31 March 2017

Quantum integrable systems, conformal field theories and stochastic processes, Institut d'Études Scientifiques de Cargèse, 12 -23 September 2016

The 26th Jyväskylä Summer School, University of Jyväskylä, 8 -19 August 2016

46th Probability Summer School Saint-Flour, Saint-Flour, 3 -15 July 2016

The Helsinki Workshop on Quantum Gravity, University of Helsinki, 1 -3 June 2016

Random processes and random media: a conference on the occasion of Alain-Sol Sznitman's 60th birthday, ETH Zürich, 11 -15 January 2016

Meeting for young mathematicians in Finland, Aalto University, 26 -28 August 2015

Summer school: Stochastic processes and random matrices, École de Physique des Houches, 6 - 31 July 2015

20th Itzykson conference: Random Surfaces and Random Geometry, CEA Saclay, 10 -12 June 2015

TEACHING

Functional analysis, Department of Mathematics and Statistics, University of Helsinki, fall 2019 (teaching assistant)

Probability theory I-II, Department of Mathematics and Statistics, University of Helsinki, fall 2018 (teaching assistant & substitute lecturer)

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Stochastic methods, Department of Mathematics and Statistics, University of Helsinki, fall 2017 (teaching assistant & substitute lecturer)

Stochastic methods in physics and biology, Department of Mathematics and Statistics, University of Helsinki, spring 2016 (teaching assistant)

Linear algebra and differential equations, Department of Mathematics and Systems Analysis, Aalto University, fall 2013 (teaching assistant)

Foundations of discrete mathematics, Department of Mathematics and Systems Analysis, Aalto University, fall 2013 (teaching assistant)

THESIS SUPERVISION

Marcus Leivo, bachelor's thesis *Counting binary trees*, spring 2017

LANGUAGE SKILLS

Finnish: mother tongue **English:** excellent **German:** fluent **Swedish:** fluent
French: intermediate

IT SKILLS

Programming: Matlab, Java
Mathematical writing: LaTeX
Computer algebra: Maple

COMPETITION SUCCESS, AWARDS AND GRANTS

Competitive grant of Mathematics and Science Fund of University of Helsinki for undergraduate students, 2013
VII Estonian-Finnish Olympiad in Physics, contestant, 2009
National physics competition (high school), contestant in the finals (top 20), 2009

POSITIONS OF TRUST

Deputy member of the Department Council, Department of Mathematics and Statistics, University of Helsinki, 2014

OTHER RESEARCH EXPERIENCE

Intern, Finnish Meteorological Institute, 6-8/2013 (3 months)
I participated in a project on the interaction of carbon dioxide between the sea and the atmosphere. My main task was to collect, control and combine the weather data of a research journey with turbulence measurements conducted on board, using Matlab.