

## Education

- 2020- jun.2023 Ph.D. Student, QMATH, University of Copenhagen, Supervisor: Albert H. Werner.  
*Thesis: Random problems in mathematical physics.*
- 2017-2019: M.Sc. Mathematics, University of Copenhagen, GPA: 12/12. Two exchange semesters on ETH Zürich specialising in mathematical physics.  
*Thesis: Exponential decay of truncated correlation functions for the 2d-Ising model at the critical temperature.* Supervision: Aran Raoufi and Wendelin Werner, ETH Zürich.
- 2016-2017: B.Sc. Physics, University of Copenhagen (some courses transferred from math), GPA of additional courses: 12/12.
- 2013-2016: B.Sc. Mathematics, University of Copenhagen. GPA: 11.7/12. Exchange semester at LMU Munich, 2015. *Thesis: Causal structure in General relativity.*

## Employment

- PhD Student, Department of Mathematical Sciences, 1.1.2020-3.7.2023
- Scientific Assistant, Department of Mathematical Sciences, 1.11.-31.12.2019.
- Member of the working group of the Danish Mathematical Olympiad (dec) 2015-  
*(Correcting tests, posing problems, teaching on training camps, fundraising, organization development and leading the Danish Team in IMO 2017, 2018 and Baltic Way 2015-2020).*
- Trading Intern, Jane Street, London, (jul-sep) 2022.  
*Financial training and data analysis in Python and Excel.*
- Teaching Assistant, University of Copenhagen (sep 2014)-(jul 2018).  
*Introduction to Mathematics, Linear Algebra (x 3), Complex Analysis, Analysis 0 (x 2), Geometry 1, Electrodynamics, Analysis 2, Measure and Integration Theory, Statistical Physics.*
- Consulting Intern, McKinsey & Company, Copenhagen, (may-jun) 2016.
- Astronomy Guide, Tycho Brahe Planetarium (mar 2014)-(aug. 2016).  
*(Explaining astronomy to the public by public shows, guided tours, lectures for school kids etc.)*
- Badminton Coach, Charlottenlund Badmintonklub (sep 2007)-(jul 2012).

## Competitions

- 1st. prize: Physical Science, Young Scientists Denmark, 2014.
- 1st. prize: China Adolescent Science and Technology Innovation Contest, 2014.
- Bronze medal, International Physics Olympiad (IPhO), 2013.
- Honorable Mention, International Mathematical Olympiad (IMO), 2013.
- 1st: The Danish Physics Olympiad 2013.
- 2nd: Danish Mathematical Olympiad (Georg Mohr-Konkurrencen), 2013.

## Research Papers

- Hansen, Kjær, K. The Uniform Even Subgraph and Its Connection to Phase Transitions of Graphical Representations of the Ising Model arXiv 2306.05130, 2023
- K., A. Lauritzen A stochastic cellular automaton model of culture formation, arXiv:2305.02153, 2023
- Hansen, K. Strict monotonicity, continuity and bounds on the Kertész line for the random-cluster model on  $\mathbb{Z}^d$ , Journal of Mathematical Physics, 2023.
- K., Werner Spectra of Lindblad operators on the infinite line: From non-Hermitian to full evolution via tridiagonal Laurent matrices, arXiv: 2206.09879, 2022
- K. Raoufi, Mass scaling of the near-critical 2D Ising model using random currents, Journal of Statistical Physics, 2022.
- K. On monotonicity and couplings of random currents and the loop- $O(1)$ -model, 2022, ALEA. Latin American Journal of Probability and Mathematical Statistics.
- Bluhm et. al. *SARS-CoV-2 transmission routes from genetic data: A Danish case study*, 2020, PloS one.
- Jensen, K., Rasmussen *Combinatorial classification of quantum lens spaces*, 2018, Pacific Journal of Mathematics.
- Holdum, K., Rasmussen *Powers in Prime Bases and a Problem on the Central Binomial Coefficient*, 2014, Integers: Electronic Journal of Combinatorial Number Theory.
- Holdum, K., Rasmussen *On a Conjecture on the Representation of Positive Integers as the Sum of Three Terms of the Sequence  $\left\lfloor \frac{n^2}{a} \right\rfloor$* , 2014, The Journal of Integer Sequences.

Apart from that I have written various non technical papers and contributions to public debate such as: *Matematikere afslører smitteveje med corona*, (with Christandl, Werner), Aktuel Naturvidenskab, 2020 *Danmark var vært for Baltic Way 2017*, on behalf of Georg Mohr-Konkurrencen LMFK-bladet, 2018. *Fysik i Olympiadeklassen*, Aktuel Naturvidenskab, 2013

## Volunteer Work

- Member of the pre-selection jury 2016-2022 and the final jury 2017-2022, consultant prior to the final 2017-2018, Young Scientists Denmark.
- Correcting the Danish Physics Olympiad 2014 and teaching at the Danish Physics Olympiad 2015.
- The Danish Youth Association of Science 2011 - 2014.  
(Arranging lectures, excursions, a one week Math Camp 2014 as well as planning and teaching a workshops on classical geometry and olympiad mathematics.)

## Personal Information

Contact: frederik.ravn.klausen@gmail.com, frederikravnklausen.github.io

Citizenship: Danish, Year of birth: 1994.

Languages: Danish (native), English (fluent), German (fluent), Python (operational), R (intermediate).