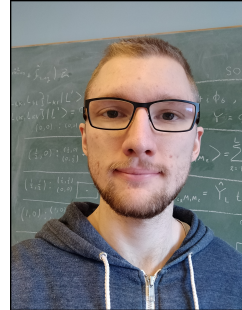


# Rasmus Steen Kofoed Nielsen

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Born: June 10, 1996—Roskilde, Denmark  
Nationality: Danish



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## Current occupation

PhD at Bielefeld University, Faculty of Physics

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## Previous Education

2018 *B.Sc. in Physics: Quantum Physics*, University of Copenhagen  
2020 *M.Sc. in Physics: High Energy Theory and Cosmology*, University of Copenhagen

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## Areas of primary interest

- Quantum Field Theory
  - General Relativity
  - Differential Geometry
  - Quantum Gravity
  - String Theory
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## Subjects of prior and current work

- Black hole solutions in  $(2+1)$  dimensional Einstein gravity (*B.Sc. thesis*)
  - Point particle solutions in  $(2+1)$  dimensional Anti-de Sitter space (*project o.c.s.*)
  - Defect conformal field theory in the context of AdS/CFT (*M.Sc. thesis*)
  - Topological susceptibility; applications to QCD at finite temperature (*PhD thesis*)
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## Subject of PhD thesis

2022-2025

We want to study the topological susceptibility, i.e., the fluctuations of the topological charge at high temperature, where perturbative QCD can be applied. One can then expand the path integral in small fluctuations around a field configuration with non-zero topological charge, e.i. an instanton. Our goal is to study the contribution of so-called *soft modes* ( $k \ll T$ ), which at the moment is not well understood.

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## Subject of master thesis

2019-2020

Computation of various *two-point functions* between types of local single-trace scalar operators in different (*less supersymmetric*) defect versions of  $\mathcal{N} = 4$  super Yang Mills theory. Both conventional perturbative techniques, as well as techniques related to *integrability* in  $\mathcal{N} = 4$ , are employed in order to obtain the next to leading order contributions of the two-point functions in question.

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## Subject of bachelor thesis

2018

Features of *black hole solutions* in  $(2+1)$  dimensional Einstein gravity with a cosmological constant. We examine both classical features like *mass and spin*, and the semiclassical appearance of a temperature leading to *Hawking radiation*.

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## Projects outside course scope

2018

Reading course on *point particle solutions* in  $(2+1)$  dimensional *Anti-de Sitter space*, and their connection to *rotating and non-rotating black hole solutions*.

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## Programming experience

- Extensive programming experience with:  
**Mathematica, Maple, MATLAB, Python, PHP and HTML**
  - Moderate programming experience with:  
**JavaScript, C++, C and Java**
  - Solved 24 [Project Euler](#) problems (*programming challenges*).
  - Link to my [GitHub Page](#), containing various projects.
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## Volunteer work

2017, 2018,  
2019

- Worked for the IT department of the nonprofit organization **Roskilde Festivalen**, by delivering and connecting cash registers to shops on the festival grounds.

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## Prior work experience

2009-2010  
2021-2022

- Worked as *paperboy* for a local newspaper in the Roskilde area: **Dagbladet Roskilde**.
- Worked as a *part time math teacher*: **Frederiksberg HF-kursus**.

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## Language proficiency

- Danish: *native speaker*
- English: *fluent*
- German: *basic knowlegde*
- Japanese: *basic knowlegde*

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## Hobbies

- Reading books and watching lectures on math and physics
  - Doing exercise and weightlifting
  - Playing computer games
  - Watching films and TV series
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