

# CURRICULUM VITAE

## Jón E. Gudmundsson

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Stockholm University and  
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## Education

- **Princeton University** — PhD in physics Sep 2014  
Thesis: *Probing Early Universe Cosmologies with SPIDER and Planck HFI*  
Advisor: Prof. William C. Jones
- **Princeton University** — MA in physics Apr 2011
- **University of Iceland** — BSc in physics (*First Class with Distinction, 9.26/10.00*) June 2008

## Academic Positions

- **Senior Research Scientist, Stockholm University and the OKC** Aug 2018 – Aug 2022  
Research position funded through a (5.2M SEK) Career Grant from the Swedish Space Agency and a (3.3M SEK) Starting Grant from the Swedish Research Council.
- **Postdoc, Stockholm University and the Oskar Klein Centre (OKC)** Sep 2015 – Apr 2018  
Constraining models of the early universe by continuing analysis of the SPIDER and *Planck* HFI datasets. Contributed to the development of the Simons Observatory optics design.
- **Postdoctoral Research Associate, Princeton University** Sep 2014 – Aug 2015  
Logistical Deployment of the SPIDER payload to Ross Island, Antarctica. Integration of the SPIDER science payload in preparation for flight. Early processing of flight data.

## Student Supervision

- [PhD] Alexandre Adler (Stockholm University, SU), main advisor 2019–2023
- [PhD] Konstantina Dachlythra (SU), main advisor 2019–2023
- [BSc] Alexei Molin (ENS Paris-Saclay), host for a 9-month internship program 2020–2021
- [BSc] Elisabeth Ström (SU), independent research project [postponed due to COVID-19] 2020
- [PhD] Matteo Billi (University of Bologna), host for a 3-month internship program 2019
- [PhD] Adri Duivenvoorden (Stockholm University), de facto main advisor 2015–2019
- [MSc] Said Keshavarzi (Stockholm University), thesis advisor 2018–2019
- [BSc] Advised approx. 20 Princeton Univ. students on various instrumentation projects 2009–2014
- [BSc] Elvar Bjarkason (University of Iceland), Rannís summer research project 2011

## Honors, Awards, and Grants

- VR Starting Grant [**PI**] (3.3M SEK/310k Euro) 2020–2023  
– *Imaging the Infant Universe with Future Instruments*
- Swedish Space Agency Career Grant [**PI**] (5.2M SEK/490k Euro) 2018–2022  
– *Imaging the Infant Universe with SPIDER, the Simons Observatory, and Future Instruments*
- VR (Swedish Research Council) Research Environment Grant [**co-I**] (1.8M SEK/165k Euro) 2020–2025  
– *Detecting Axion Dark Matter in the Sky and in the Lab* (1.7M Euro total)  
– Program led by Prof. Hiranya Peiris [**PI**], co-Is: Stefano Bonetti, Jan Conrad, Jon Gudmundsson, David Marsh, and Franck Wilczek
- ESA Technology Development Contract [**co-I**] (16k Euro) 2019–2020  
– *Development of Large Anti-Reflection Coated Lenses for Passive (Sub)Millimetre-Wave Science Instruments* (600k Euro total)

- Program led by Prof. Peter Hargrave (Cardiff) [PI], with co-Is from Cardiff University, University College London, Anglia Ruskin University, and Stockholm University.
- Gruber Prize in Cosmology awarded to the Planck team 2018
- Nordita Scientific Program Grant [**co-I**] (600k SEK/60k Euro) 2017
  - *Advances in Theoretical Cosmology in Light of Data*
- Antarctic Service Medal 2015
- Inaugural recipient of Joseph Taylor Graduate Student Fellowship (50k USD) 2013–2014
- Leifur Eiriksson Scholarship Award (25k USD) 2010–2011
- Thor Thors Special Contribution Award (5k USD) 2009–2010
- G.P. Bjarnason Award for outstanding academic performance (5k USD) 2008

## Pending grant applications

- Horizon 2020 MSCA-RISE [**co-I**] (55k Euro) 2021-2023
  - *CMB-Inflate*, Research and Innovation Staff Exchange program to benefit LiteBIRD research efforts (1.1M Euro total)

## Research Groups

- SPIDER (NASA), *Member (2008–), Key Personnel (2012–)*:  
The development and full system integration of the SPIDER stratospheric balloon-borne polarimeter which launched from Antarctica on January 1, 2015. Led the design, build, and characterization of instrument sub-systems. Including: interferometers, superfluid capillary assemblies, radiative and magnetic shielding. Responsible for cryogenic operations, receiver testing, and deployment logistics.
- *Planck* HFI (ESA), *HFI Associate (2009–), HFI Core Team Member (2010–), Planck Scientist (2014–), HFI Final Release Core Team Member (2015–)*:  
In-flight characterization of the High Frequency Instrument. Led the development of an analysis infrastructure which generates many hundred days worth of high-fidelity time-domain simulations used to inform pointing, beam, and flux reconstruction. Provided spatial reconstruction calibration and associated errors required for cosmological analysis. Constrained the brightness temperature of the five outer planets spanning 100–857 GHz. Provided consistency checks that verify the absolute calibration of instrument.
- The Simons Observatory, *Member (2016–)*:  
Member of the Optical Design Group which is in charge of validating proposed optical designs for the \$50M Large Aperture Telescope. Leading efforts that project optical systematic effects. Member of the Calibration, Sensitivity, and Systematics Group, which, among other things, is in charge of defining calibration requirements and identifying systematic effects that drive instrument design.
- LiteBIRD (JAXA/ESA/NASA), *European Collaboration member and JAXA External Collaborator (2018–)*:  
Swedish representative on the Steering Committee. Member of the LiteBIRD Interim Governance Board. Point of contact for optics design of mid- and high-frequency telescope (MHFT). Co-responsible for RF testing and main beam near field testing. Responsible for MHFT test cryostat. Convener of speaker selection committee. Participating actively in Systematics, Calibration, and High Frequency Telescope Joint Study Groups.
- CMB-S4 (DOE), *Collaboration member (2018–)*:  
Worked on the CMB-S4 Technical Book. Contributing to optics working group.