

# Jonas Sinjan

PHD STUDENT · DOCTORAL RESEARCHER

Max Planck Institute for Solar System Research, Göttingen, Germany

✉ jonassinjan8@gmail.com | 🏠 jonassinjan.com | 📧 JonasSinjan | 🌐 Jonas-Sinjan | 🎓 Jonas Sinjan

## Education

### Max Planck Institute for Solar System Research and University of Göttingen

Göttingen, Germany

Ph.D. Physics

Sep 2020 - present

- Thesis: Analysis and Calibration of the SO/PHI-HRT Data (Preliminary Title)
- Advisors: Prof. Dr. Sami K. Solanki, Dr. Johann Hirzberger, Prof. Dr. Ansgar Reiners
- Courses: Machine Learning, Clean Code for (Astro-) Physicists, The Central Star, The Planetary System, Good Scientific Practice, Scientific Writing

### Imperial College London

London, UK

MSci Physics

2016 - 2020

- First Class Honours
- Thesis: *Determination of Instrument Magnetic Signals on the Solar Orbiter Spacecraft and Early In-Flight Magnetic Field Frequency Analysis*
- Thesis Advisor: Prof. Tim Horbury

## Experience

### Max Planck Institute for Solar System Research

Göttingen, Germany

Doctoral Researcher

Sep 2020 - present

- Member of the PHI instrument team, which is on board the ESA/NASA Solar Orbiter spacecraft
- Lead developer and maintainer of the PHI-HRT data reduction pipeline
- Involved in operations of the PHI instrument, SOOP coordinator
- Compared Magnetic Field from PHI-HRT with SDO/HMI

### ESA Academy

Redu, Belgium

Post-Alpbach Summer School

Nov 2022

- Member of the Trajectory Analysis Team
- Further developed a scientific space plasma mission to Venus to investigate its induced magnetosphere

### Austrian Research Promotion Agency, ESA, International Space Science Institute

Alpbach, Austria

Alpbach Summer School

July 2022

- Developed a scientific space mission concept to investigate Transient Luminous Effects and Terrestrial Gamma Ray Flashes

### DESY

Zeuthen, Germany

Summer Research Student

July 2019 - Feb 2020

- Developed Fortran methods to cheaply generate turbulence in astrophysical plasmas
- Advisor: Prof. Dr. Huirong Yan and Dr. Kirit Makwana
- Received extension to further develop the work beyond the 8 week summer placement

## Research Fellowships Awarded

### Undergraduate Research Opportunities Program

London, UK

Engineering and Physical Sciences Research Council (EPSRC)

Summer 2018

- Awarded £2550 for summer research funding to investigate dusty plasma physics at Imperial College London
- Advisor: Dr. Michael Coppins

## Software, Computing

## Languages

**Languages** Fluent: Python, Familiar: Bash, IDL, Modern Fortran, C  
**Markup** CSS, HTML, LaTeX, markdown  
**DevOps** version control (Git), documentation, testing  
**Software** Linux, JHelioviewer, STK12 (basic), COMET

**English** Native  
**Dutch** Bilingual proficiency  
**German** Estimated B2/C1  
**French** A2

# Professional Service

---

## Chemistry, Physics and Technology Section Representative

Max Planck PhDnet

2022

- Elected to the Steering Group 2022 to represent the CPT Max Planck Institutes

## PhDnet General Meeting

Max Planck PhDnet

Cologne, Germany

10 - 12 October 2022

- Lead organiser of the first in-person General Meeting since 2019

## External Representative - Max Planck Institute for Solar System Research

Max Planck PhDnet

July 2021 - July 2022

- Elected to represent the Doctoral Researchers at my institute

# Papers

---

A current publication list is available from ORCID (ID: 0000-0002-5387-636X) Citations: 33 h-index: 3 (NASA ADS)

## SELECTED REFEREED PUBLICATIONS

- 2023 **Magnetic fields inferred by Solar Orbiter: A comparison between SO/PHI-HRT and SDO/HMI**, J. Sinjan, D. Calchetti, J. Hirzberger et. al., [A&A](#), doi: 10.1051/0004-6361/202245830
- 2023 **Coronal voids and their magnetic nature**, J. D. Nölke, S.K. Solanki, ..., J. Sinjan et. al., [A&A](#), accepted, doi:
- 2023 **Intensity contrast of solar network and faculae close to the solar limb, observed from two vantage points**, K. Albert, N. A. Krivova, ..., J. Sinjan et. al., [A&A](#), accepted, doi:
- 2023 **Reconstruction of total solar irradiance variability as simultaneously apparent from Solar Orbiter and Solar Dynamics Observatory**, K. L. Yeo, N. A. Krivova, ..., J. Sinjan et. al., [A&A](#), accepted, doi:
- 2023 **A multiple spacecraft detection of the 2 April 2022 M-class flare and filament eruption during the first close Solar Orbiter perihelion**, M. Janvier, S. Mzerguat, ..., J. Sinjan et. al., [A&A](#), doi: 10.1051/0004-6361/202346321
- 2023 **Slow Solar Wind Connection Science during Solar Orbiter's First Close Perihelion Passage**, S. L. Yardley, Christopher J. Owen, ..., J. Sinjan et. al., [ApJ](#), doi: 10.3847/1538-4365/acd24b
- 2023 **Spectropolarimetric investigation of MHD wave modes in the photosphere: first results from PHI on board Solar Orbiter**, D. Calchetti, M. Stangalini, ..., J. Sinjan et. al., [A&A](#), doi: 10.1051/0004-6361/202245826
- 2023 **Stereoscopic disambiguation of vector magnetograms: first applications to SO/PHI-HRT data**, G. Valori, D. Calchetti, ..., J. Sinjan et. al., [A&A](#), doi: 10.1051/0004-6361/202345859
- 2023 **A first rapid synoptic map using SDO/HMI and SO/PHI data**, P. Loeschl, G. Valori, ..., J. Sinjan et. al., [A&A](#), submitted, doi:
- 2023 **Wavefront error of PHI/HRT on Solar Orbiter at various heliocentric distances**, F. Kahil, A. Gandorfer, J. Hirzberger, D. Calchetti, J. Sinjan et. al., [A&A](#), doi: 10.1051/0004-6361/202346033
- 2023 **Determination of the SO/PHI wavefront degradation using multiple defocused images**, F.J. Bailén, D. Orozco Suárez, ..., J. Sinjan et. al., [A&A](#), submitted, doi:
- 2023 **The ratio of horizontal to vertical displacement in solar oscillations estimated from combined SO/PHI and SDO/HMI observations**, J. Schou, J. Hirzberger, ..., J. Sinjan et. al., [A&A](#), submitted, doi:
- 2023 **Direct assessment and calibration of SDO/HMI helioseismology of the Sun's far side using SO/PHI magnetograms**, D. Yang, L. Gizon, ..., J. Sinjan et. al., [A&A](#), doi: 10.1051/0004-6361/202346030
- 2022 **The magnetic drivers of campfires seen by the Polarimetric and Helioseismic Imager (PHI) on Solar Orbiter**, F Kahil, J Hirzberger, S.K. Solanki, L. P. Chitta, H. Peter, F. Auchère, J. Sinjan et. al., [A&A](#), doi: 10.1051/0004-6361/202142873

## CONFERENCE PROCEEDINGS

- 2022 **The on-ground data reduction and calibration pipeline for SO/PHI-HRT**, J. Sinjan, D. Calchetti, J. Hirzberger et. al., [SPIE](#), doi: 10.1117/12.2629323
- 2022 **Image quality of data products of the high resolution telescope of the polarimetric and helioseismic imager**, F Kahil, A Gandorfer, J Hirzberger, ..., J. Sinjan et. al., [SPIE](#), doi: 10.1117/12.2628942

# Presentations

---

## CONFERENCE TALKS

### SO/PHI Team Meeting

Instituto de Astrofísica de Andalucía - CSIC

Stereoscopy with SO/PHI-HRT

Granada, Spain

9 - 11 October 2023

### European Geophysical Union General Assembly 2023

European Geophysical Union

Accepted for 3 presentations/posters:

- Talk: Alpbach Work - Co-author: CASPER: A Space Mission Concept to Investigate Transient Luminous Events and Terrestrial Gamma Ray Flashes
- Poster: PhD Work - First Author: Comparison of the Magnetic Field Inferred by SO/PHI-HRT and SDO/HMI
- Poster: Post-Alpbach Work - Co-author: MVSE Mission Phase A/0 Study: A Proposal for Understanding the Dynamics of Induced Magnetospheres

Vienna, Austria

23 - 28 April 2023

### SO/PHI Team Meeting

Institut d'Astrophysique Spatiale - CNRS - Université Paris-Saclay

SO/PHI-HRT SDO/HMI Cross Calibration

29 November - 1 December 2022

### Solar Polarization Workshop 10

National Astronomical Observatory of Japan - Kyoto University

SO/PHI-HRT SDO/HMI Cross Calibration and the True Solar Magnetic Flux

Kyoto, Japan

7 - 11 November 2022

### SO/PHI Team Meeting

Instituto de Astrofísica de Andalucía - CSIC

Part 1: C-MILOS with HMI Stokes, Part 2: HMI - HRT Cross Correlation Mar 2022, Etalon Defects looking at HRT

Granada, Spain

16 - 19 May 2022

### Hinode-14/IRIS-11 Joint Science Meeting

George Mason University

Preliminary data quality of the PHI magnetograph's High Resolution Telescope on Solar Orbiter

Virtual

25 - 28 October 2021

## POSTERS

### 8th Solar Orbiter Workshop

Queen's University Belfast

SO/PHI-HRT SDO/HMI Cross-Calibration and the True Solar Magnetic Flux

Belfast, UK

12 - 15 September 2022

### SPIE Astronomical Telescopes + Instrumentation

SPIE

The on-ground data reduction and calibration pipeline for SO/PHI-HRT, doi: 10.1117/12.2629323

Virtual, Montreal, Canada

17 - 22 July 2022

### Preamble to the Solar Orbiter School

Institut d'Astrophysique Spatiale, Institut de Recherche en Astrophysique et Planétologie, Laboratory of

Physics and Chemistry of the Environment and Space

SO/PHI-HRT Polarimetry, doi: 10.5281/zenodo.4663729

Virtual

6 - 9 April 2021

## WORKSHOPS

### Tutorial Day of the 8th Solar Orbiter Workshop

Queen's University Belfast

PHI Data Tutorial

Belfast, UK

16 September 2022

# Teaching Experience

---

### Classical Field Theory Repetition Course

Graduate Teaching Assistant

- Gave lectures and tutorials on classical fields, set and marked problem sheets, in an intense repetition course over a full week
- The course was given in half-german, half-english

University of Göttingen

2021

### Introduction to Astrophysics

Graduate Teaching Assistant

- Gave weekly in-person tutorial sessions, and graded the weekly assignments

University of Göttingen

2021-2022

### Advanced Physics Lab Course

Graduate Teaching Assistant

- Led virtual lab sessions for the Cosmic Microwave Background Radiation data analysis laboratory module, and graded reports

University of Göttingen

2021-2022

- Responsible for ensuring the safety of the students and guiding the first-year undergraduates through their physics laboratory experiments in the Autumn term

## Funding Awards

---

2022	<b>Financial Assistance for the Solar Orbiter 8th Workshop</b> , Queen's University of Belfast	<i>£500</i>
2022	<b>Travel Funding to the Solar Polarization 10th Workshop</b> , National Astronomical Observatory of Japan	<i>€3000</i>
2022	<b>Travel Funding to the Alpbach Summer School</b> , DLR	<i>€1000</i>
2022	<b>Travel Funding to the Post-Alpbach Summer School</b> , ESA Academy	<i>€500</i>
2018	<b>Undergraduate Research Opportunities Program</b> , Engineering and Physical Sciences Research Council	<i>£2550</i>