

Jordy Davelaar

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Flatiron Institute
Center for Computational Astrophysics
162 Fifth Avenue New York, NY 10010, US

Citizenship: The Netherlands

Professional experience

- 2022 - present** **Junior Member of the International Astronomical Union**
- 2022 - present** **Associate Member of the LISA Consortium**
- 2020 - present** **Joint Columbia/Flatiron Institute Postdoctoral Prize Fellow**
Department of Astronomy, Columbia University, New York, USA
- 2020 - present** **Guest Researcher**
Department of Astronomy, Radboud University, Nijmegen, The Netherlands
- 2019** **Research Analyst**
Flatiron Institute, Center for Computational Astrophysics, NY, USA
- 2016 - present** **Member of the Event Horizon Telescope Collaboration**

Education

- 2016 - 2020** **Ph.D. in Astronomy**
Radboud University, Nijmegen, The Netherlands.
Advisors Prof. Heino Falcke (promotor) and dr. Monika Mościbrodzka.
Thesis title "*Connecting the micro to macrophysics*".
Defended on 24th of August 2020.
- 2013 - 2016** **M.Sc. in Physics and Astronomy (Cum Laude)**
Radboud University, Nijmegen, The Netherlands.
Advisors Prof. Heino Falcke and dr. Monika Mościbrodzka.
Thesis title: "*Modeling M81* with a tilted accretion disk.*"
- 2010 - 2013** **Bachelor Physics and Astronomy (Cum Laude)**
Radboud University, Nijmegen, The Netherlands.
Advisor Prof. Abraham Achterberg.
Thesis title: "*The propagation of cosmic rays in the galaxy.*"

Leaves

2021 Partial medical leave — January - November. In total 6 month of partial medical leave.

Grants and Awards

Research grants

2020-2024 Flatiron Research Fellow Postdoctoral Prize Fellowship,

2020-2024 Columbia University Theoretical High-Energy Astrophysics Postdoctoral Fellowship

2020-2023 Harvard University Black Hole Initiative Postdoctoral Prize Fellowship (declined)

2020-2023 CITA Postdoctoral Fellowship (declined)

2020-2023 Boulder University Postdoctoral Fellowship (declined)

Computing grants - Principle Investigator

2020 **PRACE Distributed European Computing Initiative (DECI)** — *High resolution simulations of accreting black holes*, 20 million CPU hours

2018 **Cartesius tier 1 grant** — *High resolution simulations of accreting black holes*, 6 million CPU hours

2017 **Cartesius starting grant** — *High resolution simulations of accreting black holes*, 500,000 CPU hours

Observing grants - Principle Investigator

2017 **Effelsberg telescope** — *Single-dish flux density monitoring of M81**. Accepted for observations, not scheduled for observations.

2017 **VLBA** — *Core position angle measurements of M81**. Accepted for observations, not scheduled for observations.

2016 **EVN** — *Core position angle measurements of M81**. Twelve hours observing time. Accepted and observed, project code ED042

Awards

- 2020 EHT Outstanding Ph.D. thesis award**
For my PhD Thesis submitted to Radboud University Nijmegen.
- 2020 Bruno Rossi Prize**
Rewarded to the Event Horizon Telescope collaboration for the first image of a black hole.
- 2020 Einstein Medal**
Rewarded to the Event Horizon Telescope collaboration for the first image of a black hole.
- 2020 Breakthrough Prize in Fundamental Physics (\$3,000,000)**
Rewarded to the Event Horizon Telescope collaboration for the first image of a black hole.
- 2019 NSF Diamond Achievement Award**
Rewarded to the Event Horizon Telescope collaboration for the first image of a black hole.
- 2018 KNAW Face of Science**
The Royal Netherlands Society for Arts and Sciences (KNAW) elected me as a Face of Science for being a promising PhD student who stands out by presenting excellent research to the general public.
- 2015 Student award Radboud university**
Reward for my contributions to the the many years I served in student politics at faculty and university level at Radboud University combined with excellent study results. Reward once a year to at most two students.

Community Service

- 2020 - recent Dutch Cancer Society**
Member of the patient advisory council, tasked with ranking cancer research proposals from patient perspective
- 2017 - 2019 IMAPP board Ph.D. representative**
IMAPP department, Radboud University, Nijmegen, The Netherlands

- 2014 - 2015** **University Student Council**
Radboud University Nijmegen, The Netherlands
- 2013 - 2014** **Faculty Board student representative**
Faculty of Science, Radboud University Nijmegen, The Netherlands
- 2012 - 2013** **Faculty Student Council**
Faculty of Science, Radboud University Nijmegen, The Netherlands

Mentoring

Undergraduate students

Daniel Kok — B.Sc. student at Radboud University 2017. Co-supervised with prof. Heino Falcke. Topic: *Black hole accretion from a particle perspective.*

Joost de Kleuver — B.Sc. student at Radboud University 2018.
Co-supervised with prof. Heino Falcke. Topic: *Autonomous Bayesian parameter estimation for accreting supermassive black holes.*

Jeffrey van der Gucht — M.Sc. student at Radboud University 2018.
Co-supervised with prof. Heino Falcke. Topic: *Deep Horizon: A machine learning network that recovers accreting black hole parameters.*

Jesse Vos — M.Sc. student projects at Radboud University 2019.
Co-supervised with prof. Heino Falcke. Topic: *Simulating the variability and time-lags of Sagittarius A*.*

Micaela Menegaldo — Exchange student at Radboud University 2019. Co-supervised with prof Heino Falcke and prof. Roger Deane. Topic: *Unsupervised classification of simulated black hole shadows.*

Bram van den Berg — B.Sc. student at Radboud University 2021. Co-supervised with prof. Heino Falcke. Topic: Modeling the jet of Centaurs A with the κ -jet model.

Renze Oosterhuis — B.Sc. student at Radboud University 2021. Co-supervised with prof. Heino Falcke. Topic: *Bayesian parameter estimation of the jet launching region in the Centaurus A galaxy.*

Aristo Liu — Undergraduate student at Columbia University 2022 to present. Co-supervised with prof. Lorenzo Sironi. Topic: *Black hole spin down in GRMHD simulations.*

Stan DeLaurentiis — Undergraduate student at Columbia University 2022 to present. Co-supervised with prof. Zoltan Haiman. Topic: *Accretion on eccentric supermassive black hole binaries*.

Graduate students

Anthony Chow — Graduate student at Columbia University 2022 to present. Co-supervised with prof. Lorenzo Sironi. Topic: Kelvin-Helmholtz instability at jet-wind interfaces.

Luke Krauth — Graduate student at Columbia University 2022 to present. Co-supervised with prof. Zoltan Haiman. Topic: Electromagnetic signatures of supermassive black hole binaries.

Teaching

- 2020 - present** Guest lecture on black holes, high energy astrophysics, and the event horizon telescope, Columbia University, Astronomy Department
- 2018 - 2019** Guest lecture on radiation processes, Radboud University, Astronomy Department
- 2016 - 2019** Coordinator of the problem classes of Introduction to Astronomy. Responsible for preparing questions and solutions for weekly problem sets and the final exam. Radboud University, Astronomy Department
- 2012 - 2019** Teaching assistant, Radboud University, physics and astronomy courses including; general relativity, introduction to astronomy, observational astronomy, electromagnetism, waves and vibrations,

Leadership

- 2020 - 2021** Coordinator and founder of the electron distribution function task force, Event Horizon Telescope Collaboration, 2020-2021.
- 2018** LOC Event Horizon Telescope Conference 2018, Radboud University Nijmegen.

Technical skills

Programming languages: C, C++, CUDA, Fortran, Python, Julia, bash

Codes: Main developer of RAPTOR, and κ monty. User of BHAC, Sailfish, tristan-mp, HARM3D, grtrans.

Analysis: Python, Paraview, Visit, Mathematica, GNUplot

HPC: PRACE GRID, Cartesius Supercomputer (The Netherlands), popeye (USA), Pleiades (USA).

Public Outreach

- 2018 - 2020** Face of Science, multiple public talks, media interviews, newspaper, magazines, radio and television.
- 2018 - 2019** Altaïr program. Lecturer on black holes at an educational program aimed at high school children from Islamic minority groups in Amsterdam.
- 2018** Organization of the Radboud Space Experience, a public astronomy experience during the four days marches festival in Nijmegen (visited by over 1 million people).
- 2015 - 2017** Coordinator open star gazing evening, Radboud University, The Netherlands

Scientific Talks

Invited talks

- Aug 2022** ngEHT workshop “*Broadening Horizons*”, Harvard University, USA
- Jul 2022** Clemson Computation Astrophysics Summer seminar, USA
- Jun 2022** GRAPA seminar, University of Amsterdam (canceled covid19), The Netherlands
- Jun 2022** Astronomy Colloquium, Radboud University, The Netherlands
- May 2022** CCPP Colloquium, NYU, USA
- Feb 2022** Astronomy Colloquium, MIT, USA
- Feb 2020** Astronomy Colloquium, MPIK, Germany
- Dec 2019** Multi messenger workshop, Prague, Czech Republic
- Nov 2019** GRPIC workshop, University of Grenoble, France
- Aug 2019** JILA seminar, Boulder University, USA
- Jun 2019** Flatiron series seminar, Flatiron Institute, USA
- Apr 2019** Black Hole Initiative seminar, Harvard University, USA
- Apr 2019** High energy astrophysics seminar, Princeton university, USA
- Apr 2019** Astronomy seminar, Columbia University, USA
- Mar 2019** GRPIC workshop, Flatiron Institute, USA
- Feb 2019** High Energy Astrophysics seminar, Columbia University
- Oct 2018** Conference “The Central Arcsecond”, Ringberg, Germany
- Jul 2018** Astronomy Colloquium, KU Leuven, Belgium
- May 2018** Workshop “the radio to x-ray connection in accreting objects”, Puglija Italy

Contributed talks

- Jul 2022** LISA Symposium
- Jun 2022** LISA Astrophysics Working group
- Apr 2022** KITP program, *Bridging the Gap: Accretion and Orbital Evolution in Stellar and Black Hole Binaries*, USA
- Nov 2020** IAU Challenges in Computation Astrophysics
- Oct 2020** KITP mini conference, The Frontiers of Event Horizon Scale Accretion
- Aug 2019** KITP conference, Connecting the micro to macro scales, USA
- Apr 2019** Event Horizon Collaboration meeting, Princeton, USA
- Feb 2018** BlackHoleCam Face-to-Face meeting
- May 2017** Dutch astronomy conference
- Feb 2017** BlackHoleCam Face-to-Face meeting
- Nov 2016** Event Horizon Telescope collaboration meeting
- Feb 2016** BlackHoleCam Face-to-Face meeting

Contributed posters

- May 2018** Dutch astronomy conference
- May 2017** Dutch astronomy conference
- May 2016** Dutch astronomy conference

Collaborators

L. Sironi (Columbia University), Z. Haiman (Columbia University), H. Falcke (Radboud University), O. Porth (University of Amsterdam), Bart Ripperda (IAS), A. McFayden (NYU), J. Zrake (Clemson University), Daniel D’Orazio (University of Copenhagen) Thomas Bronzwaer (Radboud University), Hector Olivares (Radboud University), Michael Janssen (MPIfR), Thomas Hertogh (KU Leuven), Daniel Mayerson (KU Leuven), Fabio Bachinii (KU Leuven)