

FLOOR BROEKGAARDEN

<https://github.com/FloorBroekgaarden>

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<http://www.broekgaarden.nl/floor/wordpress/>

EDUCATION

PhD in Astronomy and Astrophysics <i>Harvard University</i>	2019 –now <i>United States of America</i>
MSc. of Astronomy and Astrophysics (Cum Laude) <i>University of Amsterdam, GPA: 9.2 out of 10, finished in one year instead of two</i>	2017 - 2018 <i>Netherlands</i>
Erasmus exchange in Applied Mathematics and Astrophysics <i>Lund University,</i>	(6 months) 2017 <i>Sweden</i>
BSc. in Physics and Astronomy <i>University of Amsterdam,</i>	2013 - 2017 <i>Netherlands</i>
BSc. in Mathematics <i>University of Amsterdam,</i>	2013 - 2017 <i>Netherlands</i>

SCIENTIFIC PUBLICATIONS

- van Son, L. A. C., de Mink, S.E., **Broekgaarden, F. S.**, Renzo, M., Justham, S., Laplace, E., Morán-Fraile, J., Hendriks, D. D. and Farmer, R. *Polluting the Pair-instability Mass Gap for Binary Black Holes through Super-Eddington Accretion in Isolated Binaries*, [ADS \[7 citations\]](#)
- Vigna-Gómez, A., MacLeod, M., Neijssel, Coenraad J., **Broekgaarden, F. S.**, Justham, S., and Howitt, G., de Mink, S.E. and Mandel, I., *Common-Envelope Episodes that lead to Double Neutron Star formation*, arXiv e-prints, 2001.09829 2020 [ADS \[10 citations\]](#)
- **Broekgaarden, F. S.**, Justham, S., de Mink, S. E., Gair, J., Mandel, I. and Stevenson, S., Barrett, J.W. and Vigna-Gómez, A. Neijssel, Coenraad J., *STROOPWAFEL: simulating rare outcomes from astrophysical populations, with application to gravitational-wave sources*, MNRAS, 490-4 2019 [mnras/stz2558 \[7 citations\]](#)
- **Broekgaarden, F. S.** *public available algorithm STROOPWAFEL: Simulating The Rare Outcomes Of Populations With Adaptive importance sampling For Efficient Learning.*, 2019, [Zenodo](#), [github](#)
- Neijssel, C. J., Vigna-Gómez, A., Stevenson, S., Barrett, J. W., Gaebel, S. M., **Broekgaarden, F. S.**, de Mink, S. E., Szécsi, D., Vinciguerra, S. and Mandel, I., *The effect of the metallicity-specific star formation history on double compact object mergers*, MNRAS, 490-3 2019 [mnras/stz2840 \[40 citations\]](#)

AWARDS AND SCHOLARSHIPS

- | | |
|---|------|
| • Dutch talent fellowship award from “Prins Bernhard Cultuurfonds” of 20 000 euro | 2020 |
| • First prize for best Astronomy master thesis Anton Pannekoek Institute | 2018 |
| • Second presentation prize for best MSc. colloquium Anton Pannekoek Institute | 2018 |
| • HPC-Europa3 Transnational Access programme grant to visit UK + 40 000 CPU hours | 2018 |
| • McKinsey excellence talent Grant | 2018 |
| • Kapteyn grant to support travel to Denmark | 2018 |

- Grant for 10 000 CPU hours on the LISA cluster 2018
- Kavli international summer school scholarship 2017
- Erasmus scholarship for academic exchange to Lund 2016
- ASTRON/JIVE international summer student program scholarship 2016
- Scholarship from Amsterdam University Fund for research project in Washington D.C. 2015
- Third place in the National Astrophysics Olympiad 2013
- Netherlands Physical Society grant for observational project at La Palma 2013

COMPUTER SKILLS

COMPAS:	Core developer of now publicly available population synthesis code COMPAS .
C++:	Very good knowledge. Used on daily basis.
PYTHON:	Very good knowledge. I use this on a daily basis and used in all projects.
Linux / \LaTeX:	Very good knowledge. I use this on a daily basis.
Matlab / Mathematica:	Very good knowledge. Used throughout many courses and projects
DIFMAP, AIPS:	Good knowledge. Used in ASTRON/JIVE summer school.
FORTRAN / R:	Basic knowledge

SUPERVISING / MENTOR EXPERIENCE

- ◇ Main supervisor of senior undergraduate student Tom Wagg (astrophysics), Harvard Sept 2019 - 2020
- ◇ Co-supervisor MSc. student Lokesh Khandelwal (astro-statistics), University of Amsterdam Sept 2019 - 2020
- ◇ Co-supervisor MSc. student Floris Kummer (astro-statistics), University of Amsterdam Sept 2019 - 2020
- ◇ Supervisor Florian Dekker with high school project (gravitational waves) 2018

OTHER RESEARCH EXPERIENCE

Research fellow in Astrophysics Advisor: I. Mandel	Feb. 2019 – April 2019 <i>Monash University, Australia</i>
Aspasia student researcher in Astrophysics Advisors: S.E. de Mink	Oct. 2018 – Dec. 2018 <i>University of Amsterdam, Netherlands</i>
HPC-Europa3 exchange fellow in Astrophysics Advisor: I. Mandel	Sept. 2018 <i>University of Birmingham, England</i>
HPC-Europa3 exchange fellow in Statistics Advisor: J. Gair	Oct. 2018 <i>University of Edinburgh, Scotland</i>
Master thesis research project on gravitational-wave astro-statistics Advisors: S. Justham and S.E. de Mink	July 2017 – July 2018 <i>University of Amsterdam, Netherlands</i>
Kavli international summer program in gravitational-wave astrophysics Advisor: S. Justham Co-supervisors: I. Mandel, J. Gair, T. Fragos, [link]	Summer 2017 <i>Niels Bohr Institute, University of Copenhagen, Denmark</i>
Bachelor thesis research project in astro-statistics Advisors: D.T. Crommelin, S.E. de Mink	Jan. 2016 – Jan. 2017 <i>University of Amsterdam, Netherlands</i>
ASTRON/JIVE international summer student program Advisors: Z. Paragi, I. van Bemmelen	Summer 2016 <i>ASTRON & Joint Institute for VLBI ERIC</i>

George Washington University summer research internship

Summer 2015

Advisor: A. van der Horst

*George Washington University, Washington D.C. USA***Observational Astronomy project**

April 2014

Advisor: R.A.D. Wijnands, T. Halbesma

*University of Amsterdam, Netherlands***Observational Astronomy project**

April 2013

Advisor: H. Hoekstra

*La Palma, Canary Islands, Spain***OUTREACH / VOLUNTEER**

◇ Organizer of the Machine Learning Journal Club	2020 - now
◇ Organizing weekly student lunches with colloquium speaker	2019 - 2020
◇ Contributed to several astro Wikipedia pages	2019
◇ Initiated Early Career Astronomers Group on Facebook.	2019
◇ Organizer of the National Astrophysics Olympiad	2017-2018
◇ Outreach volunteer of the Anton Pannekoek Institute (organizing telescope tours)	2017-2018
◇ Student representative of the master track in Astronomy and Astrophysics	2017-2018
◇ Volunteer of the Astrophysics open day	2017
◇ Trainer and Coach student volleyball team	2015 -2017
◇ Editorial board of the Dutch Journal of Physics	2014 -2017
◇ Student representative of the Double Bachelor of Mathematics, Physics and Astronomy	2013-2017

MEDIA & PRESS

◇ Interview about career for orientation course Physics & Astronomy students University of Amsterdam	2019
◇ Astrobites covering my STROOPWAFEL algorithm	2019
◇ Commenting as expert in the Dutch newspaper de Volkskrant	2019
◇ Radio interview about lunar eclipse for Amsterdam Radio station (in Dutch)	2019
◇ Popular article on ASTRON/JIVE summer internship ASTRON/JIVE daily image	2016
◇ ASTRON/JIVE summer school testimony ASRTON/JIVE	2016
◇ Popular article on my Summer internship research Nederlands Tijdschrift voor Natuurkunde	Feb. 2016
◇ Announcement of Astrophysics Olympiad winners Astronomie.nl	2013

INVITED TALKS

◇ Statistical Methods for the Detection, Classification, and Inference of Relativistic Objects USA, ICERM , Brown University	Nov 2020
◇ invited for seminar at University of Wisconsin-Madison USA,	October 2020
◇ Seminar UdeC Chile,	September 2020
◇ Lunch talk Astrophysics group, University of Birmingham School of Astronomy, University of Birmingham, England	Oct 2018

- ◇ [Lunch talk](#) at institute for astronomy, St. Andrews University
St. Andrews University, Scotland Sept 2018
- ◇ Seminar talk HPC-Europa3 Transnational Access program
Edinburgh, Scotland Sept 2018

OTHER PRESENTATIONS

- ◇ Talk during European Astronomy Society (EAS) conference 2020
- ◇ AstroChats 2020
- ◇ Lunch talk Ortec (Dutch consultancy company) 2020
- ◇ Public lecture Beacon Hills Seminar, Boston, MA 2020
- ◇ Talk in [astro-statistics group seminar](#) of Harvard, Cambridge, MA 2020
- ◇ Talk during [Lorentz Workshop](#) Leiden 2019
- ◇ Talk in Ozgrav gravitational-wave meeting, Australia 2019
- ◇ [Public talk](#) Mount Burnett Observatory, AUS, 2019
- ◇ [Lunch talk](#) Anton Pannekoek Institute, Amsterdam 2019
- ◇ Presentation at MSc. symposium Anton Pannekoek Institute, Amsterdam 2018
- ◇ Poster presentation at the Netherlands Astronomers Conference, Amsterdam 2018
- ◇ Presentation at Kavli international summer school on Gravitational Waves, Denmark 2017
- ◇ Presentation on N-body dynamics, Lund Observatory 2017
- ◇ Presentation of BSc. thesis, Anton Pannekoek Institute, Amsterdam 2016
- ◇ Presentation at International ASTRON/JIVE summer school, 2016
- ◇ Presentation on Gamma-ray burst project at George Washington University, USA 2015

WORK EXPERIENCE

- Teaching assistant and mentor for the Bachelor Physics and Astronomy** Aug. 2017 - Aug. 2018
 - mentoring 30 students in their personal development
 - designing class materials and assignments
- Student assistant of the director for the Bachelor Mathematics (UvA)** Sept. 2014 - Sept. 2016
 - working closely together with mathematics professors to improve courses
 - in charge of communication and outreach

LANGUAGES

Dutch (Native), **English** (Advanced, CAE), **French** (intermediate), **German** & **Swedish** (Basic)

CONFERENCES ATTENDED

- ◇ [Summer School](#) in Gravitational-Wave Astronomy, Denmark July 2018
- ◇ Netherlands Astronomy Conference (NAC), The Netherlands May 2018
- ◇ Observational Signatures of Type Ia Supernova Progenitors III
Lorentz Center Leiden, The Netherlands Feb 2018
- ◇ Black Holes in the Netherlands symposium, Utrecht, The Netherlands Oct 2017

- ◇ And then there was Light: Electromagnetic Signatures of Stellar Mass Binary Black Hole Mergers Oct 2017, Lorentz Center Leiden, The Netherlands
- ◇ Big Questions in Astrophysics conference, Lund, Sweden May 2017
- ◇ Bayes at Lund 2017, Sweden April 2017
- ◇ Netherlands Astronomy Conference (NAC), The Netherlands May 2016