

Johanna Hartke | Curriculum Vitae

Finnish Centre for Astronomy with ESO – Quantum, Vesilinnantie 5

20014 University of Turku Finland

✉ johanna.hartke@utu.fi • 🌐 jhartke.github.io • 🆔 0000-0002-8745-689X

Research Experience and Employment

Finnish Centre for Astronomy with ESO (FINCA), University of Turku

Postdoctoral Fellowship

2022–present

European Southern Observatory (Santiago, CL)

Postdoctoral Fellowship

2018–2022

○ 2021–2022: secondment to the Sub-department of Astrophysics, University of Oxford

○ 2018–2021: 50% duties as support astronomer & MUSE fellow at Paranal Observatory

European Southern Observatory (Garching, DE)

PhD Research

2015–2018

supervised by M. Arnaboldi & O. Gerhard

Substructures, accretion events, and surrounding diffuse intra-group light in bright early-type galaxies

University of Groningen (NL)

Master Research

2014–2015

supervised by E. Tolstoy & S. Jin

Dynamical modelling of the dwarf spheroidal galaxies Ursa Minor and Draco

University of Groningen (NL)

Research Project

2013–2015

supervised by R. Sanderson & A. Helmi

Using tidal streams to determine the mass distribution of dark halos

Jacobs University Bremen (DE) & University of Groningen (NL)

Bachelor Research

January - May 2013

supervised by A. Helmi & J. Vogt

Fitting orbits to stellar streams in the Aquarius simulation

Australian National University (Canberra, AUS)

Research Internship

July - September 2012

supervised by K. C. Freeman

Dynamics of the Aquarius star stream

Education

Ludwig-Maximilians-Universität (International Max Planck Research School)

PhD, "magna cum laude"

2015–2018

Astronomy

University of Groningen

Master of Science, "cum laude"

2013–2015

Astronomy

Jacobs University Bremen

Bachelor of Science, GPA 1.6 (on a 5-point scale with 1 being the highest grade)

2010–2013

Physics

Languages

German: Native proficiency

English: Full professional proficiency

Dutch: Elementary proficiency

French: Limited working proficiency

Spanish: Elementary proficiency

Finnish: Basic proficiency

Computer Skills

Programming: Python (astropy), iraf, C, IDL, Mathematica, html5, SQL

Pipelines: ESO reflex, esorex, PampelMUSE, SDFRED (Subaru Telescope), PN.S (William Herschel Telescope), Astromatic software suite

Observing Experience and Time Allocation

Experience

ESO Very Large Telescope, Chile

MUSE Instrument Fellow

2018–2021

- Support astronomer at UT4 and UT3
- Expert user of MUSE and HAWK-I with the adaptive optics facility, working knowledge of SPHERE and ESPRESSO
- Lead study on AO performance characterisation of MUSE+GALACSI in wide-field mode; selected figures now included in the MUSE user manual
- Member of the MUSE-IRLOS+ upgrade team: responsible for target selection and AO performance evaluation in narrow-field mode, support astronomer during the commissioning runs
- Performed day-time duties for all VLT-I instruments

William Herschel Telescope, Spain

Observer

2017–2019

Expert user of the PN.S visitor instrument, including instrumental set-up, filter tuning, and calibration

Successful Proposals

PI: J. Hartke

3 hours

MUSE@VLT

ESO P108

VCC 1249: a dwarf elliptical galaxy in the making? The effects of potential shape on tidal stripping

PI: J. Hartke

9 hours

MUSE@VLT

ESO P108

Zoom into the first phase of galaxy evolution with MUSE-NFM on the most extreme confirmed relic at $z > 0.1$; partially observed

ESO-VLT: Co-I of 250+ hours with FORS2, HAWK-I, and MUSE (including the LEWIS large programme)

William Herschel Telescope: Co-I of 20+ nights with AF2-WYFFOS2 (multi-object spectroscopy) and PN.S (slitless spectroscopy)

Canada-France-Hawaii Telescope (CFHT): Co-I of 50+ hours with MegaCam (imaging)

Large Binocular Telescope: Co-I of 5 hours with MODS (multi-object spectroscopy)

Membership in Large Collaborations

LEWIS ESO Large Programme

PI: E. Iodice

2021–present

Looking into the faintEst With muSe (LEWIS): on the nature of ultra-diffuse galaxies in the Hydra-I cluster

Developer of a new MUSE data reduction workflow for ultra-diffuse galaxies

INSPIRE ESO Large Programme

PI: C. Spiniello

2021–present

INvestigate Stellar Populations in RElics with X-Shooter

Leader of the high-spatial-resolution spectroscopic follow-up with MUSE NFM

SIGNALS CFHT Large Programme

PI: L. Rousseau-Nepton

2021–present

Star-formation, ionized gas, and nebular abundances legacy survey with SITELLE

Leader of the team working on extragalactic planetary nebulae populations

Awards, Scholarships, and Grants

International Astronomical Union

IAU Grant

June 2023

Travel grant to attend IAU Symposium 384

Finnish Centre for Astronomy with ESO

FINCA mobility grant

2023

Travel grant for a two-week visit to INAF Capodimonte, Naples, Italy

Finnish Centre for Astronomy with ESO

FINCA visitor grants

2023

Two travel grants to invite Dr. Ennis and Dr. Iodice for one-week stays at the University of Turku

German Scholars Organisation

Fellowship

2022–2023

Full funding to attend GSO Leadership Academy 6 5-day workshops in Boston and Darmstadt

International Astronomical Union

IAU Grant

October 2016

Travel grant to attend IAU Symposium 323

Studienstiftung des dt. Volkes

Scholarship and Grant

2011–2015

German Academic Scholarship Foundation, awarded for academic excellence

Jacobs University Bremen

President's List Award

2012–2013

Awarded to students with GPA better than 1.5

Jacobs University Bremen

Scholarship

2010–2013

Entrance scholarship awarded for duration of BSc studies

DAAD (German Academic Exchange Service)

RISE worldwide internship program

Scholarship

2012

Travel and lodging subsidy for internship at Australian National University

Teaching and Supervision

Teaching

University of Turku

MSc-level lecture and exercise

Teaching

March 2023

Spectroscopic diagnostics with Integral Field Units – planetary nebulae as an example

ESO Garching

MSc-level lecture

Teaching (as part of the Summer Research Programme)

July 2022

Integral-field spectroscopy with VLT-MUSE

University of Antofagasta

Teaching

3D Spectroscopy and adaptive optics: MUSE+GALACSI at the ESO-VLT

ESO Vitacura

Teaching

Lecture on “Galaxy haloes”

ESO Vitacura

Teaching

Lectures on “Loops and Conditionals” & “Plotting with python”

Jacobs University Bremen

Teaching Assistant

Taught by Prof. Dr. T. Heine, grading of coursework and design and teaching of tutorial sessions

MSc-level lecture

May 2022

La Silla Observing School

February 2020

ESOPy4.0: Python for people in quarantine

April 2020

General Physics IIB – Modern Physics

Spring Semester 2012

Supervision

ESO Garching

MSc student S. Penger (U. Köln)

ESO Summer Research Programme

July 2022–August 2022

University of Oxford

BSc student L.S. Guité (U. Montréal)

Summer Research

May 2022–August 2022

Paranal Observatory

MSc student A. Cornejo (PUC)

Paranal Summer Student Internship Programme

January–February 2021

ESO Vitacura

PhD student A. Ennis (Instituto de Astrofísica de La Plata)

ESO Studentship

November 2020–October 2021

ESO Vitacura & La Silla Observatory

Tutoring

Conception and design of the project “Characterising nearby galaxies with photometry” and tutoring of the five PhD-level students during the two-week long school

La Silla Observing School

February 2020

Paranal Observatory

BSc/MSc students A. Reyes and C. Moya

Paranal Summer Student Internship Programme

January–February 2020

ESO Garching

MSc student V. Comte

MSc Internship

April–July 2017

Publications

Under review

1. Forbes, D., Gannon, J., Iodice, E., et al.: Looking into the faintEst Wlth MUSE (LEWIS): II. Phase Space Distribution and Globular Cluster Richness (submitted to MNRAS Letters)
2. Iodice, E., Hilker, M., Doll, G. et al.: Looking into the faintEst Wlth MUSE (LEWIS): I. Project description and preliminary results (submitted to A&A)
3. Simon, D. A., Cappellari, M., **Hartke, J.**: arXiv:2303.18229 (2023, first referee report received from MNRAS)

In press

4. Pulsoni, C., Gerhard, O., Fall, S. M., et al.: arXiv e-prints, arXiv:2303.06132 (2023, accepted for publication in A&A)

Refereed publications

5. Martín-Navarro, I., Spiniello, C., Tortora, C., et al.: MNRAS, 521, 1408 (2023)
6. D’Ago, G., Spiniello, C., Coccato, L., et al.: A&A, 672, A17 (2023)
7. Bhattacharya, S., Arnaboldi, M., Caldwell, N., et al.: MNRAS, 517, 2343 (2022)

8. Arnaboldi, M., Bhattacharya, S., Gerhard, O., et al.: A&A, 666, A109 (2022)
9. **Hartke, J.**, Arnaboldi, M., Gerhard, O., et al.: A&A, 663, A12 (2022)
10. Gran, F., Zoccali, M., Saviane, I., et al.: MNRAS, 509, 4962 (2022)
11. Bhattacharya, S., Arnaboldi, M., Gerhard, O., et al.: A&A, 647, A130 (2021)
12. **Hartke, J.**, Arnaboldi, M., Gerhard, O., et al.: A&A, 642, A46 (2020)
13. Bhattacharya, S., Arnaboldi, M., Caldwell, N., et al.: A&A, 631, A56 (2019)
14. Bhattacharya, S., Arnaboldi, M., **Hartke, J.**, et al.: A&A, 624, A132 (2019)
15. **Hartke, J.**, Arnaboldi, M., Gerhard, O., et al.: A&A, 616, A123 (2018)
16. **Hartke, J.**, Arnaboldi, M., Longobardi, A., et al.: A&A, 603, A104 (2017)
17. Sanderson, R. E., **Hartke, J.**, Helmi, A.: ApJ, 836, 234 (2017)

Selected proceedings and other publications.....

18. Veršič, T., Rejkuba, M., Arnaboldi, M., et al.: arXiv e-prints, arXiv:2305.09822 (2023)
19. Wevers, T., Selman, F., Reyes, A., et al.: Proc. SPIE, 12186, 121860T (2022)
20. Ennis, A. I., **Hartke, J.**, Bian, F.: Boletín de la Asociación Argentina de Astronomía La Plata Argentina, 63, 175 (2022)
21. **Hartke, J.**: Joint Observatories Kavli Science Forum in Chile (joksfc2022). Proceedings of the conference held 25-29 April, 13 (2022)
22. **Hartke, J.**, Selman, F., et al.: SciOps report after second IRLOS+ commissioning PDM technical note ESO-411299 (2021)
23. Selman, F., Bian, F., **Hartke, J.**, et al.: SciOps report after first IRLOS+ commissioning PDM technical note ESO-392763 (2021)
24. **Hartke, J.**, Kakkad, D., Reyes, C., et al.: Proc. SPIE, 11448, 114480V (2020)
25. Pompei, E., **Hartke, J.**, Korhonen, H., et al.: The Messenger, 180, 46 (2020)
26. Sbordone, L., Paladini, C., Antilen, J., et al.: The Astronomer's Telegram, 13525, 1 (2020)
27. Kokotanekova, R., Facchini, S., **Hartke, J.**: The Messenger, 178, 67 (2019)
28. Bhattacharya, S., Arnaboldi, M., **Hartke, J.**, et al.: IAU Symposium, 343, 201 (2019)
29. **Hartke, J.**: Light in the Suburbs: Structure and Chemodynamics of Galaxy Halos, 18 (2019)
30. **Hartke, J.**, Arnaboldi, M., Longobardi, A., et al.: Planetary Nebulae: Multi-Wavelength Probes of Stellar and Galactic Evolution, 323, 293 (2017)
31. Jin, S., Irwin, M., Tolstoy, E., et al.: Multi-Object Spectroscopy in the Next Decade: Big Questions, Large Surveys, and Wide Fields, 507, 241 (2016)
32. Sanderson, R. E., **Hartke, J.**, Helmi, A., et al.: AAS, 225, 119.02 (2015)

Press releases.....

October 2020: Green Light Unveils the Presence of an Old and Metal-Poor Halo in a Giant Elliptical Galaxy, Subaru Telescope and Isaac Newton Group, La Palma

October 2018: Three Dynamically Distinct Stellar Populations in the Halo of M49, Isaac Newton Group, La Palma

Conference contributions and Seminars

Upcoming contributions.....

IAUS 384: Planetary Nebulae

Invited talk

Krakow, Poland

September 2023

EAS 2023, S10: The edge of galaxies from field to cluster environment	Krakow, Poland
<i>Invited talk</i>	<i>July 2023</i>

Scientific talks.....

VEGAS collaboration meeting	Pimonte, Italy
<i>Invited talk</i>	<i>July 2022</i>

Joint Observatories Kavli Science Forum in Chile	Santiago, Chile
<i>Contributed talk, held remotely</i>	<i>April 2022</i>

Cosmic nuggets: compact and massive galaxies across the Universe	Sexten, Italy
<i>Invited talk, held remotely</i>	<i>March 2022</i>

EAS 2021, S11: The outer reaches of galaxies	Leiden, The Netherlands
<i>Contributed talk, held remotely</i>	<i>June 2021</i>

AO4Astro II	Online
<i>Contributed talk, held remotely</i>	<i>June 2021</i>

Streams 21: Constraints on Dark Matter	Online
<i>Contributed talk, held remotely</i>	<i>February 2021</i>

SPIE Astronomical Telescopes + Instrumentation: AO Systems VII	San Diego, USA
<i>Contributed talk, held remotely</i>	<i>December 2020</i>

XVI SOCHIAS Annual Meeting: The Local Universe	Temuco, Chile
<i>Contributed talk, held remotely</i>	<i>December 2020</i>

EAS 2020, S11: The Local Group in context	Leiden, The Netherlands
<i>Contributed talk, held remotely</i>	<i>July 2020</i>

Light in the suburbs: structure and chemodynamics of galaxy halos	Sexten, Italy
<i>Contributed talk</i>	<i>June 2019</i>

EWASS 2018, SS13: Galaxy clusters and groups across cosmic time	Liverpool, United Kingdom
<i>Contributed talk</i>	<i>April 2018</i>

4th IMPRS student symposium	Garching, Germany
<i>Contributed talk</i>	<i>October 2017</i>

MIAPP In & Out. What rules the Galaxy Baryon Cycle?	Garching, Germany
<i>Contributed talk</i>	<i>July 2017</i>

IAUS 323: Planetary Nebulae	Beijing, China
<i>Contributed talk</i>	<i>October 2016</i>

2nd IMPRS student symposium	Garching, Germany
<i>Contributed talk</i>	<i>October 2016</i>

Seminars and Colloquia.....

FINCA seminar	Turku, Finland
<i>held remotely</i>	<i>April 2023</i>

Astronomy seminar, University of Helsinki	Helsinki, Finland
	<i>March 2023</i>

FINCA retreat, University of Turku	Teijo, Finland
	<i>February 2023</i>

Astronomy seminar, University of Turku	Turku, Finland
	<i>June 2022</i>

Galaxy dynamics group seminar, University of Vienna <i>held remotely</i>	Vienna, Austria <i>March 2022</i>
SPIMAX Seminar, University of Oxford	Oxford, UK <i>March 2022</i>
Astrophysics Colloquium: Early Career Showcase <i>held remotely</i>	Oxford, UK <i>January 2022</i>
University of Southampton Astronomy Seminar	Southampton, UK <i>December 2021</i>
ESA Science Seminar <i>held remotely</i>	Online <i>July 2021</i>
Galaxy Evolution Seminar, University of Oxford <i>held remotely</i>	Oxford, UK <i>August 2020</i>
DARK Cake Talk, Niels Bohr Institute	Copenhagen, Denmark <i>December 2019</i>
ESO Thirty Minute Talk	Santiago, Chile <i>August 2019</i>
ESO Wine and Cheese Seminar	Garching, Germany <i>July 2019</i>
Lunch Talk, Kapteyn Astronomical Institute	Groningen, The Netherlands <i>July 2019</i>
Astronomy Colloquium, Universidad de Concepción	Concepción, Chile <i>December 2018</i>
Galaxy Cluster Discussion Group	Garching, Germany <i>February 2018</i>
ESO Wine and Cheese Seminar	Garching, Germany <i>January 2018</i>

Service

Review Panels

2019, 2020: ESO Paranal internship student selection committee

2019: ESO Workshop selection committee

Proposal Review

2023–present: ESO OPC Expert Panel Member (starting November)

2021: Canada-France-Hawaii Telescope external review (Canadian Time Allocation Committee)

2020-2021: Hubble Space Telescope external review (galaxies panel)

2019-2021: ESO VLT technical feasibility assessment for MUSE

2019-2021: ESO Director's Discretionary Time technical review

Meetings

2022: LOC & SOC: 4th Wetton workshop, Oxford

2019-2021: LOC: Extragalactic spectroscopic surveys: past, present and future of galaxy evolution (GALSPEC2021), Santiago

2019-2021: Founder and organiser of the ESO Chile astronomy lecture series

2016–2018: ESO students and fellows coffee organiser

2016: LOC: 1st IMPRS student symposium, Garching

Service.....

2022–present: Member of the ESO ELT PSF-R working group

2022–present: Member of the MICADO PSF-R working group

2022–present: Founder and organiser of the weekly FINCA Turku coffee meetings

2018–2021: Member of the MUSE Instrument Operation Team

2020–2021: ESO Chile fellow representative

2015–2018: IMPRS student representative

2016: Scientific Assistant at ESO OPC P98 and P99

Outreach.....

2019 – present: Several popular science talks to diverse levels of audiences

2019–2022: ESO Chile outreach volunteer

2015–2018: ESO Garching Outreach & Supernova volunteer

2014–2015: Volunteer at the Blaauw Sterrenwacht, Groningen

Training and Personal Development

2022–2023: GSO Leadership Academy: two 5-day intensive workshops on leadership, communication, and management practises

2015–2022: ESO-provided training and workshops through the students' and fellows' development programme

○ Presentation skills

○ Unconscious bias

○ Fair treatment, courtesy, and respect

○ Science communication

○ Imposter syndrome

○ Conflict management