

Curriculum vitae

1. Full name and date

Name: **Peter Hilding Johansson**
Gender: Male
Date of writing the CV: 27.04.2016

2. Date and place of birth

Date and place of birth: 02.05.1978, Kokkola, Finland
Citizenship: Finnish
Current address: Department of Physics,
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3. Education and degrees awarded

- Doctor of Philosophy in Astronomy, Institute of Astronomy, University of Cambridge, degree awarded on 03.10.2006
- Master of Science in Astronomy, Department of Astronomy, University of Helsinki, degree awarded on 14.09.2001
- Bachelor of Science in Astronomy, Department of Astronomy, University of Helsinki, degree awarded on 14.09.2001
- Docent (Habilitation) in Astronomy, Department of Astronomy, University of Helsinki, awarded on 26.10.2009

4. Other education and training, qualifications and skills

- Student member of the council of the Department of Astronomy, University of Helsinki, 2001-2002.
- System administrator of the SGI-Altix 3700 Bx2 supercomputer hosted at the University Observatory Munich, 2007-2010.

5. Linguistic skills

Swedish (mother tongue)
Finnish (mother tongue)
English (fluent)
German (fluent)

6. Current position

Associate Professor of Astrophysics (Apulaisprofessori), Department of Physics, University of Helsinki, since **01.09.2014**. The position is a tenure track position, with the possibility of becoming a full tenured professorship.

7. Previous work experience and career breaks

- Assistant Professor of Astrophysics (Apulaisprofessori), Department of Physics, University of Helsinki, 01.09.2011-31.08.2014
- University Researcher (Yliopistotutkija) at the Finnish Centre for Astronomy with ESO, University of Turku (based at the Department of Physics, University of Helsinki), 01.01.2011-31.08.2011.
- Research Scientist (Senior postdoc) in the Computational Astrophysics Group, University Observatory Munich, Ludwig-Maximilians-Universität (LMU), 01.02.2008-31.12.2010.
- Research Associate (Postdoc) in the Computational Astrophysics Group, University Observatory Munich, Ludwig-Maximilians-Universität (LMU), 01.09.2006-31.01.2008.
- Postgraduate student supervised by Prof. George Efsthathiou at the Institute of Astronomy, University of Cambridge, funded by Finnish scholarships, 01.10.2002-31.08.2006.
- Research Assistant, Researcher and Postgraduate student, Department of Astronomy, University of Helsinki, 19 months in total during 01.08.2000-30.09.2002.
- Research Assistant, Metsähovi Radio Observatory, 22.05.2000-31.07.2000.
- Career breaks: Mandatory military service, 15.07.1997-11.03.1998.

8. Research funding as well as leadership and supervision

Awarded research funding:

- Ruth och Nils-Erik Stenbäcks Foundation Young investigator grant awarded 29.04.2015 for Theoretical Extragalactic research:
Funding period 01.05.2015-30.04.2017: 35,000€.
- Academy of Finland grant awarded 12.06.2014 for the project "The formation of elliptical galaxies":
Funding period 01.09.2014-31.08.2018: 581,046€.
- Magnus Ehrnrooth Foundation 50th anniversary grant awarded 06.03.2013 for the project "Supermassive black holes in massive galaxies":
Funding period 01.07.2013-31.12.2015: 130,000€.
- Three-year project funding from the research funds of the University of Helsinki awarded 29.11.2011 for the project "Formation and evolution of galaxies":
Funding period 01.01.2012-31.12.2015: 119,000€.
- The Wihuri Foundation scholarship for postgraduate studies at the University of Cambridge awarded on 09.10.2002 for one year of study: 13,500€.
- The Oskari Huttunen Foundation scholarship for postgraduate studies at the University of Cambridge awarded on 25.09.2002 for three years of study: 57,000€.
- The Magnus Ehrnrooth Foundation scholarship granted by The Finnish Society of Sciences and Letters for postgraduate studies awarded on 06.03.2002 for 6 months of study: 6,250€.
- Väisälä Foundation scholarship granted by The Finnish Academy of Science and Letter for postgraduate studies awarded on 12.12.2001 for one year of study: 14,000€.

Leadership in research work:

- Head of the Theoretical Extragalactic research group at the University of Helsinki since 01.09.2011. Currently five members in the group (P.I. + 1 university researcher + 1 postdoc + 2 Ph.D. students).
- Vice head of the Finnish participation in ESA Euclid space mission since 01.06.2012 (P.I. Dr. Hannu Kurki-Suonio).
- Participant in the Unilead program for superiors at the University of Helsinki.

Supervision of post-doc researchers:

- Main supervisor of Till Sawala, University of Helsinki, 01.10.2015-
- Main supervisor of Pauli Pihajoki, University of Helsinki, 01.02.2015-
- Main supervisor of John Regan, University of Helsinki, 01.07.2013-30.09.2015

Supervision of post-graduate students:

- Main supervisor of Natalia Lahén, University of Helsinki, 01.06.2015-
- Main supervisor of Antti Rantala, University of Helsinki, 01.05.2014-
- Main supervisor of Heidi Yli-Kankahila, University of Helsinki, 01.01.2013-31.08.2013
- Secondary supervisor of Clay Hambrick (graduation 2011) and Ena Choi (2013) at the University of Princeton, main supervisor Prof. Jeremiah P. Ostriker.
- Secondary supervisor of Simon Karl (2011), Ludwig Oser (2011) and Rhea-Silvia Remus (2015) at the Ludwig-Maximilians-Universität (LMU), main supervisor Prof. Andreas Burkert.

Officially appointed supervisor:

- Official supervisor of the Ph.D. thesis of Heidi Yli-Kankahila, Antti Rantala and Natalia Lahén (University of Helsinki).
- Official supervisor of the MSc. theses of Heidi Yli-Kankahila, Antti Rantala, Natalia Lahén (University of Helsinki).
- Official supervisor of the BSc. theses of Antti Rantala, Lasse Liljedahl, Natalia Lahén, Jussi Aaltonen, Ilana Hiilesmaa, Akke Viitanen and Anni Järvenpää (University of Helsinki).

9. Merits in teaching and pedagogical competence

Involvement in curriculum planning:

- Member of the Astronomy teaching council in charge of setting the Astronomy curriculum at the University of Helsinki (01.09.2011-)
- Co-ordinator of the Graduate school in Particle Physics and Universe Science at the Department of Physics, University of Helsinki (01.03.2013–31.12.2013)
- Member of the Board of the Graduate school in Particle Physics and Universe Science at the Department of Physics, University of Helsinki (01.01.2014–)
- Vice-head of the Master programme in Particle Physics and Astrophysical Sciences at the Department of Physics, University of Helsinki (01.03.2016–)

Teaching at the University of Helsinki:

- Introduction to the physical sciences (Fysikaalisten tieteiden esittely & Presentation av de fysikaliska vetenskaperna) basic level, I have given the Astronomy lecture in both Finnish and Swedish (2011–).
- Galaxies and Cosmology (Galaksit ja kosmologia) intermediate level (2011–).
- Elementary course in Astrophysics (Astrofysiikan peruskurssi), intermediate level (2001 and from 2012–).
- Galactic Structure (Linnunradan rakenne), intermediate level (2012–).
- Advanced Dynamics in Astronomy, advanced level (2011–).
- Open Problems in Modern Astrophysics, advanced level (2012–).
- Galaxy formation and evolution, advanced level (2013–).
- Co-organizer of the weekly Astronomy seminar series (2011–).
- Main organizer of the weekly Astro-ph journal club meetings (2011–).

Teaching at the University Observatory Munich (LMU):

- Supervising students in the Astrophysical Practicals (Astrophysikalisches Praktikum), 4 hours/week (01.09.2006-31.12.2010).

- Supervising students in the the Astrophysical Student seminars (Hauptseminar zur Astrophysik), 2 hours/week. (01.09.2006-31.12.2010).
- Main organizer of weekly group meetings and Astro-ph journal club meetings for the Computational Astrophysics Group, 2 hours/week. (01.09.2006-31.12.2010).

10. Other academic merits

Pre-examiner or opponent of a doctoral dissertation

- Pre-examiner of the Ph.D. thesis of Heidi Lietzen, University of Turku (25.08.2012).
- Pre-examiner of the Ph.D. thesis of Pauli Pihajoki, University of Turku (11.04.2014).

Evaluation of funding applications

- Referee for research proposal at Netherlands Organization for Scientific Research (NWO) (31.05.2010)

Membership in national of international expert groups

- Director of the Kumpula Space Centre (25.4.2014-)
- Head of the Astronomy and Space Physics Division of the Finnish Physical Society (22.3.2011-17.3.2015)
- Panel member on the evaluation board for an Astronomy Professor at the University of Turku. (1.12.2014-12.5.2015)
- Expert secretary (Asiantuntijasihteeri) on the board evaluating the state of Astronomy research in Finland performed in three year intervals by the Academy of Finland (2012 Academy report).

Membership in scientific and scholarly societies

- Fellow of the Swedish Academy of Engineering Sciences in Finland (23.3.2016-)
- Member of the International Astronomical Union (IAU) (1.9.2009-)
- Fellow of the Royal Astronomical Society (1.6.2011-)
- Member of the Astronomische Gesellschaft (1.1.2011-)
- Member of the Finnish Astronomical Society (1.1.2001-)
- Member of the Finnish Physical Society (Fyysikkoseura) (1.3.2011-)
- Member of the Physical Society in Finland (Fysikersamfundet) (1.6.2011-)

Referee for scientific and scholarly journals

- Science, referee.
- Astrophysical Journal Letters, referee.
- Astrophysical Journal, referee.
- Astrophysical Journal Supplement Series, referee.
- Monthly Notices of the Royal Astronomical Society, referee.
- Monthly Notices of the Royal Astronomical Society Letters, referee.
- Astronomy & Astrophysics, referee.
- Computer Physics Communications, referee.

Conference organization

- Member of the Scientific Organizing Committee for the Finnish Astronomers' Days 2016 (Tampere, Finland 23.05-25.05.2016) • Member of the Local Organizing Committee for the Physics Days 2015 conference (Helsinki, Finland, 17.03-19.03.2015)
- Member of the Scientific Organizing Committee for the European Week of Astronomy and Space Science 2013 (Turku, Finland, 08.07-12.07.2013)
- Member of the Scientific Organizing Committee for the Finnish Astronomers' Days 2012 (Haikko, Finland 04.06-06.06.2012)

Selected Invited presentations

- *Simulating the formation of early-type galaxies and the dynamics of their supermassive black holes*, George Efstathiou at 60 symposium: "From Galaxies to Large Scale Structure", Cambridge, United Kingdom (09/2016)
- *Regularized black hole dynamics in Gadget-3*, Virgo Consortium Meeting, Durham, United Kingdom (07/2015).
- *Black hole feedback in galaxy simulation*, The triggering Mechanisms for Active Galactic Nuclei, Lorentz Center, Leiden, Netherlands (07/2013).
- *Assembly histories and observational properties of simulated Early-type galaxies*, EWASS, "Mystery of ellipticals", 2013, Turku, Finland (07/2013).
- *Forming Early-type galaxies in Λ CDM simulations*, Ringberg Galaxy Formation Workshop 2011, Garching, Germany (03/2011).
- *Forming Early-type galaxies in Λ CDM simulations*, Institute of Astronomy Astrophysics seminar, Cambridge, United Kingdom (05/2010).
- *Gravitational heating helps make massive galaxies red and dead*, Thinkshop-Open problems in Galaxy formation, Potsdam, Germany (05/2009).
- *Equal- and unequal-mass mergers of disk and elliptical galaxies with black holes*, 8th Sino-German Workshop, Kunming, China (02/2009).
- *Gravitational Energy Input into Gas in Massive Galaxies*, Santa Cruz Galaxy Workshop 2008, Santa Cruz, USA (08/2008).

11. Scientific and societal impact of research

Nature and scope of publications

- **47 refereed publications.**
(7 1st author + 10 2nd author + 8 3rd author + 22 nth author).
- **Total of 2675 citations** to 47 refereed publications.
- Total of 415 citations to 7 refereed first author publications.
- Seven papers (8,14,10,17,26,31,32 in the publication list) in the top most cited 1% of all refereed astrophysics papers in the corresponding year ($\lesssim 250$ of $\sim 25,000$ publications, citation source NASA ADS).
- **h-index: 25**

Research interests

- Formation and evolution elliptical galaxies, disk galaxies and black holes.
- Dynamics of the interstellar medium and star formation.
- Computational astrophysics – numerical N-Body, SPH simulations.
- Observational studies of high-redshift and local galaxies.

Societal impact of research

- Television appearances: About 1-2 TV interview annually on astronomical topics for YLE TV nytt.
- Radio interviews: About 2-3 radio interviews annually on astronomical topics for YLE tiedeykkönen.
- Interviews in printed media: About 3-4 written comments annually for the Finnish Astronomy magazine "Tähdet ja avaruus" and Helsingin Sanomat.
- About 2-3 popular astronomy talks annually aimed at the general public.

12. Contact details for referees

Professor Jeremiah P. Ostriker

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550 West 120th Street, New York, New York 10027, USA

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Professor Andreas Burkert

Address: University Observatory Munich, Ludwig-Maximilians-Universität
Scheinerstrasse 1, D-81679 Munich, Germany

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Professor George Efstathiou

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Madingley Road, Cambridge, CB3 0HA, United Kingdom

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Helsinki, April 27, 2016