

Tjitske Starkenburg

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Academic biography

CIERA Postdoctoral Fellow

Center for Interdisciplinary Exploration and Research in Astrophysics

Northwestern University

January 2020–

Flatiron Research Fellow

Center for Computational Astrophysics

Flatiron Institute

2016–Dec 2019

PhD Astronomy

June 24 2016, *The impact of dark satellites on dwarf galaxies in a Λ CDM universe*

Advisor: Prof. Dr. A. Helmi

University of Groningen

2011–2016

MSc Astronomy, Cum Laude ~ top 5–10%

Master thesis: *On dwarf galaxies and dark satellites*

Advisor: Prof. Dr. A. Helmi

University of Groningen

2009–2011

BSc Astronomy & BSc Mathematics

Bachelor thesis: *Classifying galaxies with mathematical morphology*

Advisors: Prof. Dr. S.C. Trager (astronomy), Dr. M.H.F. Wilkinson (computer science) & Prof. Dr. G. Vegter (mathematics)

University of Groningen

2005–2009

Interests

I aim to link key evolutionary episodes in (dwarf) galaxy evolution to observational evidence through analyzing cosmological as well as isolated galaxy simulations, making mock observations for a number of surveys and instruments, and comparing these in a consistent way to observations. I am particularly keen on combining information from dynamics, kinematics, morphology, and stellar populations to understand how galaxies evolve under influence of internal and external physical processes.

Prizes and grants

Multiple travel grants

Leids Kerkhoven-Bosscha Fund

2011–2016

National Academic Award

for the Kapteyn Institute Team on The infrared universe

Netherlands Organisation for Scientific Research

2008

○ National award for the best science outreach project with national scope: €100,000 to implement the proposed project

○ I was an active member of the team and contributed to the winning presentation

"Betabeurs" Scholarship

Scholarship for top students in Mathematics, cohorts starting 2004 and 2005

Amount: €1,500

Dutch Ministry for Science and Education

2007

Prize in Mathematics

2nd Prize for presenting my own research project

Out of a selection of >100 high school students from 14 different countries

International Conference for Young Scientists

2005

Jan Kommandeur's prize

3rd Prize in a competition for the best high school research project of the Netherlands

University of Groningen

2005

Managerial experience

PI of the IQ (Isolated and Quiescent galaxies)-collaboratory

collaboration in the New York area of ~30 astronomers, with currently 3 active multi-paper projects

comparing simulated and observed star-forming and quiescent galaxies to learn about quenching processes

New York-area

2017–current

Co-leader of the synthetic observations working group

the SMAUG (Simulating Multiscale Astrophysics to Understand Galaxies) collaboration

~40 experts from 7 institutions in the USA and Europe

based at CCA, New York

2017–current

Organizing the Tristate Postdoc Retreat 2018 2-day career oriented workshop for all astronomy postdocs within the wider New York area Independently thought out and planned the program, including workshops, Decadal Survey brainstorm sessions, panel discussions, and lightning talks	Flatiron Institute 2018
Co-organizing astro-ph meetings at the Center for Computational Astrophysics	Flatiron Institute 2018
Chair, Organizing Committee Study Trip Organizing a three-week study trip	Student association for Physics and Mathematics 2008–2009
<ul style="list-style-type: none"> visiting Universities, Institutes, and Companies in Brazil and Argentina for 25 students and 2 staff members of the University of Groningen; Total budget: €70,000 	
Vice-Chair, Faculty Council, Faculty of Mathematics and Natural Sciences The Council is the official representative advisory body to the Executive Board of the Faculty	University of Groningen 2007

Teaching experience

Mentoring graduate student in the Kavli Summer School 2018 co-mentor during a 6-week project on outside-in quenching galaxies (Starkenbourg, Tonnesen & Kopenhafer, 2019; Kopenhafer, Starkenbourg & Tonnesen in prep.)	Flatiron Institute 2018
Math tutoring for Public School children with <i>The Reading Team Math Program</i> led by Prof. Dr. Hui from Columbia University	New York 2017
Mentoring CUNY undergrad Summer student Project on black holes in dwarf galaxy mergers co-mentor Prof. Dr. Jillian Bellovary The student has presented results at SACNAS and AAS meetings (Mercedes-Feliz, Starkenbourg & Bellovary in prep.)	Flatiron Institute 2017
Teaching Assistant For a number of courses on <i>Introductory Astronomy and Observational Astronomy</i> Including teaching exercise classes, and mentoring students during observation runs at the Isaac Newton Telescope (INT), La Palma, Spain, and the Blaauw Observatory, University of Groningen, the Netherlands	University of Groningen 2010–2013
Mentoring high school students in research projects Including varying science outreach activities and masterclasses	University of Groningen 2007–2011

Scientific experience

Selected Talks at Conferences

- *In the Balance: Stasis and Disequilibrium in the Milky Way*, KITP Santa Barbara, April 2019, **Invited talk**
- *The life and death of star-forming galaxies*, ICRAR, Perth, Australia, March 2019, Contributed talk
- *The Near, The Far, and The In-between: Synergy between low and high redshift galaxy evolution studies in the era of JWST and EUCLID*, Noordwijk, the Netherlands, July 2018
- *The Physics of Galaxy Scaling Relations and the Nature of Dark Matter*, Kingston, Canada, July 2018
- *KIAA Forum on Gas in Galaxies: star formation and quenching*, Beijing, China, June 2018
- *The Physics of quenching massive galaxies at high redshift*, Leiden, the Netherlands, November 2017
- *The role of gas in galaxy dynamics*, Malta, October 2017
- *Gaia sprint NYC workshop*, New York, USA, October 2016 and June 2018
- *Dark matter on smallest scales*, Leiden, the Netherlands, April 2016
- *13th Potsdam Thinkshop: Near field cosmology*, Obergurgl, Austria, March 2016
- *European Week of Astronomy and Space Science: The journey of dwarf galaxies*, Tenerife, Spain, June 2015
- *The life and death of satellite galaxies*, Leiden, the Netherlands, April 2015
- *11th Potsdam Thinkshop: Satellite galaxies and dwarfs in the Local Group*, Potsdam, Germany, August 2014

Selected Seminar Talks

- American Museum of Natural History Seminar, May 2019
- Canadian Institute for Theoretical Astrophysics, **Invited Seminar**, May 2019
- Institute for Theory and Computation, Center for Astrophysics, Harvard, **Invited Seminar**, March 2019
- Princeton University Galread: galaxy evolution paper discussion Seminar, December 2018
- Space Telescope Science Institute Galaxy Journal Club, November 2018

- Columbia University Thursday Seminar, April 2018
- New York University Astrophysics Seminar, September 2017
- Yale University lunch Seminar, February 2017
- Rutgers University lunch Seminar, February 2017
- University of California Riverside Astronomy Seminar, January 2017
- ESO lunch seminar, May 2016
- MPA Cosmology Seminar, May 2016

Publication list

Scientific Articles

- Koppelman, H.H., Helmi, A., Massari, D., Price-Whelan, A.M., and **Starkenburg, T.K.**, *Multiple retrograde substructures in the Galactic halo: A shattered view of Galactic history*, submitted to A&A, ArXiv: 1909.08924
- Pearson, S., **Starkenburg, T.K.**, Johnston, K.V.J., Williams, B.F., Ibata, R.A., and Khan, R., *Detecting Thin Stellar Streams in External Galaxies: Resolved Stars & Integrated Light*, ApJ, 883, 87
- Starkenburg, T.K.**, Sales, L.V., Genel, S., Manzano-King, C., Canalizo G., and Hernquist, L., *On the Origin of Star-Gas Counterrotation in Low-mass Galaxies*, 2019, ApJ, 878, 143
- Arabsalmani, M., Roychowdhury, S., **Starkenburg, T.K.**, et al., *The host galaxy of GRB 980425 / SN1998bw is interacting with a satellite galaxy*, 2019, MNRAS, 485, 5411
- Starkenburg, T.K.**, Tonnesen, S., and Kopenhafer, C., *What Is Inside Matters: Simulated Green Valley Galaxies Have Centrally Concentrated Star Formation*, 2019, ApJL, 874, L17
- Hahn, C.H., **Starkenburg, T.K.**, and the IQ-(Isolated and Quiescent) collaboratory, *IQ-Collaboratory 1.1: the Star-Forming Sequence of Simulated Central Galaxies*, 2019, ApJ, 872, 160
- Starkenburg, T.K.**, Helmi, A. and Sales, L.V., *Dark influences III. Structural characterization of minor mergers of dwarf galaxies with dark satellites*, 2016, Astronomy & Astrophysics, 595, A56
- Starkenburg, T.K.**, Helmi, A. and Sales, L.V., *Dark Influences II: gas and star formation in minor mergers of dwarf galaxies with dark satellites*, 2016, Astronomy & Astrophysics, 587, A24
- Starkenburg, T.K.** and Helmi, A., 2015, *Dark Influences: imprints of dark satellites on dwarf galaxies*, 2015, Astronomy & Astrophysics, 575, A59
- Helmi, A., Sales, L.V., Starkenburg, E., **Starkenburg, T.K.**, Vera-Ciro, C.A., De Lucia, G., Li, Y.-S., *Dark Satellites and the Morphology of Dwarf Galaxies*, 2012, Astrophysical Journal, 758L, 5

Outreach experience

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| Invited lecture at Amateur Astronomers Inc. | Cranford, New Jersey
November 2019 |
| Talk to a scientist at Kids Week 2017 at the Intrepid museum | New York
February 2017 |
| Astronomy on Tap (short, interactive outreach talks at a pub) talk and panel discussion | New York
November 2016 |
| Invited lectures for amateur astronomers, high school students, specific groups and general public
<i>Including a video interview for ScienceLinx, the University of Groningen science outreach center</i> | 2011–2016 |
| Lecturer and volunteer at the Blaauw Observatory Open Nights
<i>Presenting public lectures, quizzes, and experiments for young audiences, assisting the organization</i> | Groningen
2008–2016 |
| Interview in Zenit, the magazine for astronomy enthusiasts in the Netherlands | September 2015 |
| Evening for Science and Society
<i>Meeting that fosters interaction between leading figures in science, industry, politics, and culture</i>
<i>Accompanying Amina Helmi, who was invited accompanied by a young scientist of her choice</i> | The Hague
October 2015 |
| Invited Talk at the National Conference for Physics Teachers | Noordwijk
December 2013 |
| National outreach activities on the Infrared Universe
<i>After winning the National Academic Award for best science outreach project with the Kapteyn Institute team</i> | 2009 |