



Dr. Martin Sparre

Postdoctoral researcher

Contact information

Dr. Martin Sparre
Potsdam University
Germany

Citizenship: Denmark
Website: www.martinsparre.com
Born: December 3rd 1986, Helsingør, Denmark.

Research Employment

- 2020– **Postdoctoral researcher**, (*start: September 1st 2020*).
Postdoctoral researcher at Potsdam University, with additional funding/support from AIP Potsdam.
- 2017–2020 **Postdoctoral researcher**, (*start: September 1st 2017*).
Postdoctoral researcher at Potsdam University, with additional funding/support from AIP Potsdam and Massachusetts Institute of Technology.
- 2015–2017 **Sapere aude fellow at HITS and DARK**, (*start: March 1st 2015*).
Sapere aude postdoctoral fellow at Heidelberg Institute for Theoretical Studies (HITS) and Dark Cosmology Centre (DARK), University of Copenhagen. Located full-time at HITS, but grant is administered by University of Copenhagen.
- 2010–2014 **PhD at DARK**.
4 year PhD programme at DARK, University of Copenhagen. During my PhD I visited HITS for 6 months and University of Leicester for 3 months.
- 2010 **CERN**.
3 month summer student programme at CERN.

Education and Academic Degrees

- 2010–2014 **PhD at University of Copenhagen.**
Degree awarded January 20th 2015.
Advisor: Prof. Johan P. U. Fynbo,
I wrote **6 first-author papers** in my PhD,
Thesis title: *Galaxy formation: observations and simulations of galaxies"*
- 2008–2012 **MSc at University of Copenhagen.**
Advisor: Prof. Johan P. U. Fynbo. Msc program was a part of the PhD program.
- 2006–2008 **BSc at University of Copenhagen.**
Advisor: Dr. Steen H. Hansen and Dr. Jesper Sommer-Larsen.
- 2003–2006 **High School.**
Frederiksborg Gymnasium, Denmark.

Grants and Prizes

- 2014 **Postdoc grant from the Danish Council for Independent Research.**
2 year post-doctorial grant for going to HITS. 1,846,907 DKK / **247,900 EUR.**
- 2014 **Sapere Aude Prize from the Danish Council for Independent Research.**
1/2 year post-doctorial grant. 499,940 DKK / **67,106 EUR.**

Software development and data analysis

- **Hydrodynamical simulations:** Running and development of simulations with the Gadget and AREPO codes. I have developed a framework to do high-resolution zoom-in simulations, and I am responsible for the *windtunnel branch* in AREPO.
- **Spectroscopic data:** I have developed a code to reduce data from the X-shooter spectrograph (at the Very Large Telescope in Chile): *XSHPipelineManager: Wrapper for the VLT/X-shooter Data Reduction Pipeline*, Astrophysics Source Code Library, record ascl:1509.001.
- **Programming languages:** C, C++, Python. Parallellisation with OpenMP and MPI.

Mentoring

- I am currently supervising the MSc thesis of Nikos Sagias, the PhD thesis of **Mitali Damle** (Potsdam University) and co-supervising the PhD thesis of **Joseph Whittingham** (AIP Potsdam). I have previously mentored the following MSc or PhD students, who have produced or will produce a refereed publication, where I am 2nd author: **Sebastian Bustamante** (published in MNRAS), **Isabella P. Carucci** (published in JCAP), **Maan Hani** (published in MNRAS).

Teaching experience and skills

- 2022 **Lecturing.**
Full semester course, *Computational Astrophysics: Advanced Programming*, at Potsdam University. 15 lectures (each lecture is 2x45 min.).

- 2021 **Lecturing.**
Taught the full semester course, *Introduction to galaxy simulations*, at Potsdam University. 15 lectures (each lecture is 2x45 min.).
- 2021 **Lecturing.**
Taught the full semester course (online), *Computational Astrophysics: Advanced Programming*, at Potsdam University. 15 lectures (each lecture is 2x45 min.).
- 2020 **Lecturing.**
Taught the full semester course (online), *Frontiers in computational galaxy formation*, at Potsdam University. 15 lectures (each lecture is 2x45 min.).
- 2020 **Lecturing.**
Taught the full semester course (online), *Computational Astrophysics: Advanced Programming*, at Potsdam University. 15 lectures (each lecture is 2x45 min.).
- 2019 **Lecturing.**
Organizer of a master's course, *A 1-week crash course on scientific programming*, at Potsdam University. I gave 20 hours of lectures/exercises. Course taught **October 2018, April 2019, October 2020, October 2021.**
- 2018 **Lecturing.**
Organizer of a master's course, *Galaxy mergers and transformations*, at Potsdam University. I gave 15 lectures (each lecture is 2x45 min.) in the spring/summer semester 2018.
- 2013 **Didactics course.**
I took the course *Introduction to University Pedagogy*, which is a 1-week course aimed for associate professors at University of Copenhagen. The course corresponds to 2.5 ECTS.
- 2009-2014 **University tutoring.**
Teaching assistant in classical mechanics, relativity, thermodynamics, introduction to mathematics. University of Copenhagen
- 2009-2010 **High school teacher in physics.**
Part-time teacher at Frederiksborg Gymnasium.

Refereeing

Refereeing for *Monthly Notices of the Royal Astronomical Society* and *The Astrophysical Journal*.

Selected talks

- 2021 **Seminar talk, DAWN, University of Copenhagen, Multiphase gas flows in the circumgalactic medium of galaxies, 45 minutes (talk + questions).**
- 2021 **EAS conference, online, short presentation.**
- 2021 **Clash of the Titans: the Enigmatic Role of Mergers in Galaxy Evolution, Leiden, Netherlands, 20 min. talk.**
- 2021 **KITP's Fundamentals of Gaseous Halos, online participation.**
- 2019 **AIP, Potsdam, Germany, 1 hour seminar.**
- 2019 **Linking galaxies from the epoch of initial star formation to today, Sydney, Australia, invited talk, 30 min. talk.**
- 2018 **Illustris TNG workshop, Garching, Germany, workshop talk, 12 min. talk.**

- 2018 **COSMOS collaboration workshop, Copenhagen, Denmark**, *workshop talk*, 15 min. talk.
- 2018 **Galaxy interactions and mergers across cosmic time, Sexten, Italy**, *invited workshop talk*, 25 min. talk.
- 2018 **Astrophysical Shocks, AIP Potsdam, Germany**, *workshop talk*, 20 min. talk.
- 2017 **Circle of Life conference, Kruger Park, South Africa**, *Conference talk*, 20 min. talk.
- 2017 **CLUES Workshop, Madrid/Spain**, *Workshop talk*, 30 min. talk.
- 2017 **Galaxies and Stars workshop, Lund/Sweden**, *Workshop talk*, 20 min. talk.
- 2017 **SFB seminar talk, Heidelberg/HITS**, *seminar with 3 speakers*, 15 min. talk.
- 2016 **VIRGO Collaboration meeting, Durham**, *workshop talk*, 15 min. talk.
- 2016 **EPFL Lausanne**, *Seminar talk*, 45 min. seminar.
- 2016 **CCA, Center for Computational Astrophysics**, *1 hour seminar*.
- 2016 **MPIA, Max-Planck-Institut fur Astronomie**, *20 min. coffee talk*.
- 2016 **MPA, Max Planck Institute for Astrophysics**, *30 min. lunch talk*.
- 2016 **ESO, European Southern Observatory**, *45 min. black-board discussion*.
- 2016 **HITS, Heidelberg Institute for Theoretical Studies**, *45 min. seminar*.
- 2016 **Catalina Island, Galpath conference**, *25 min. conference talk*.
- 2016 **EWASS 2016 : European Week of Astronomy and Space Science**, *15 min. conference talk*.
- 2015 **ESO, European Southern Observatory**, *45 min. seminar*.
- 2014 **Caltech**, *45 min. seminar*.
- 2014 **Obergurgl galaxy conference**, *20 min. conference talk*.
- 2014 **AREPO-fest, workshop, Boston**, *20 min. talk*.