Floor van Donkelaar

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Email: floor.vandonkelaar@uzh.ch
Linkedin: *floorvandonkelaar*
Affiliation: University of Zurich
Phone: +41 79 705 89 11
Citizenship: The Netherlands
ORCID: 0000-0002-7235-9747

Research interests

Computational Astrophysics, Galaxy Formation, Galaxy Evolution

Education

Lund University — Lund, Sweden
MSc in Astrophysics — Aug 2019 – May 2021
Supervisor: Prof. Dr. Oscar Agertz — *GPA: 3.83/4*

University of Twente (ATLAS) — Enschede, The Netherlands
BSc in physics, minor in modern physics — Sep 2016 – Jul 2019
Mentor: Prof. Dr. Jennifer L. Herek — *GPA: 3.85/4*

Research experience

University of Zurich (PhD)
Supervisor: Prof. Dr. Lucio Mayer — Jan 2022 – Present

· Research on the formation of disc galaxies investigating the gasues halos with the high resolution cosmological simulation, Phoebos, to be used in combination with observations of SKA.
· Research on the formation of galaxy structures with GigaEris, a cosmological, N-body hydrodynamical "zoom-in" simulation of the formation of a Milky Way-sized galaxy.

Lund University (MSc Thesis)
Supervisor: Prof. Dr. Oscar Agertz — Feb 2020 – Sep 2021
Research on the difference between the velocity dispersion of stars in the Milky Way in comparison to gas-rich high redshift galaxies with the use of N-body hydrodynamical simulations. Thesis available *here*.

Oxford University
Supervisor: Dr. Kearn Grisdale — Jun 2020 – Nov 2020
Analyzing gas and stellar properties of Giant Molecular Clouds in Large Magellanic Clouds with the use of N-body hydrodynamical simulations.

Leinbzin-Institut für Astrophysik Potsdam (BSc Thesis)
Supervisor: Dr. Kasper Borello Schmidt — Mar 2019 – Jun 2019
Understanding the star formation rate, metallicity and thermal pressure in galaxies around z = 0.4 with the use of spectral data from MUSE.

Leinbzin-Institut für Astrophysik Potsdam
Supervisor: Dr. Kasper Borello Schmidt — Jul 2017
Generating template spectra of MUSE-Wide emission lines sources.

Teaching experience & public outreach

Teaching assistant, University of Zurich
AST 248: The Sun and Planets — Spring 2023
AST 295: Astrobiology proseminar — Fall 2022
AST 202: The Universe: Contents, Origin, Evolution and Future — Spring 2022
AST 201: Introduction to Astrobiology — Fall 2021

Chief Public Relations, Green Team Twente Jun 2017 – Sep 2018
Student team working on one of the most effecient hydrogen city cars in world. As head of the public relations and graphic designer of the team, it was my main responsibility to decide about the appearance of the team and organ zine the main events.

Workshop developer, University of Twente May 2017 – Jun 2018
We supported and developed workshops about mentoring and the writing of personal development plans in the science track of the honours programme.

Publications

Stellar cluster formation in a Milky Way-sized galaxy at z>4 - II. A hybrid formation scenario for the nuclear star cluster and its connection to the nuclear stellar ring
Floor van Donkelaar, Lucio Mayer, Pedro R. Capelo, Tomas Tamfal, Thomas R. Quinn and Piero Madau
submitted to MNRAS (March 2023)

Stellar cluster formation in a Milky Way-sized galaxy at z>4 - I. The proto-globular cluster population and the imposter amongst us
Floor van Donkelaar, Lucio Mayer, Pedro R. Capelo, Tomas Tamfal, Thomas R. Quinn and Piero Madau
MNRAS (June 2023)

From giant clumps to clouds - II. The emergence of thick disc kinematics from the conditions of star formation in high redshift gas rich galaxies
Floor van Donkelaar, Oscar Agertz and Florent Renaud.
MNRAS (March 2022)

Skills

Programming
Python | MATLAB | SQL | C | C++

Languages
Dutch (Native) | English (Fluent) | German (Elementary) | Swedish (Elementary)

Other
LaTeX | Windows OS | Linux OS | Microsoft Office Package | Adobe Package

Organizations

PhD Representative May 2022 – Present
at the Institute of Computational Sciences

UCT Alumni Association Sep 2021 – Aug 2022
Chair & PR representative

Faculty Council EEMCS Sep 2017 – Aug 2018
Elected member

Other interests

Public Relations, Graphic Design & Rugby