

CONTACT DETAILS

Address Zülpicher Straße 77, 50937 Köln
Phone (+49) 221 470 7708
Mail rathjen@ph1.uni-koeln.de
Homepage <https://rathjen.gitlab.io/>

SCIENTIFIC CAREER

Postdoctoral researcher within the DFG Collaborative Research Centre 1601 *Habitats Of Massive Stars Across Cosmic Time* Jan. 2024 - present

University of Cologne

- Numerical modelling of the interstellar medium.
- Development of code for advanced simulation techniques [mainly using Python, Fortran, PyTorch].
- Research data management for astrophysical simulation data in compliance with FAIR principles (Findable, Accessible, Interoperable, Reusable).

Postdoctoral researcher within the North Rhine-Westphalia Profileproject *From Big Bang to Big Data (B3D)* Nov. 2021 - Dec. 2023

University of Cologne

- Numerical modelling of the interstellar medium, focusing on outflows driven by cosmic rays and galactic evolution.
- Generate synthetic observations from magnetohydrodynamics simulations to compare with observations.
- Develop and implement machine learning solutions for data reduction and post-processing, enhancing analysis of complex datasets.

Ph. D. Astronomy - *Magna Cum Laude* Oct. 2021

Max Planck Institute for Astrophysics

Simulating the multi-phase interstellar medium and galactic outflows,
awarded by the Ludwig Maximilian University of Munich,
with Prof. Dr. Simon D.M. White, supervised by Dr. Thorsten Naab

M. Sc. Physics Oct. 2017

University of Cologne

Driving Turbulence into Dense Clouds, supervised by Prof. Dr. Stefanie Walch-Gassner

HONORS, AWARDS AND GRANTS

Co-PI of GCS LS Call 1/2019 Feb. 2019

40 Million CPU-h on SuperMUC-NG for SUPERSILCC (project: pn34ma)

PUBLICATIONS

Publications (as first author): 4 (2)

h-index (as first author): 3 (2)

Full publication list (ADS: <https://bit.ly/2QvVZHq>)

First author publications:

1. *SILCC VII – Gas kinematics and multiphase outflows of the simulated ISM at high gas surface densities*

T.-E. Rathjen, T. Naab, S. Walch, D. Seifried, P. Girichidis, R. Wünsch
MNRAS, 522, 1843, (2023)

2. *SILCC VI – Multi-phase ISM structure, stellar clustering, and outflows with supernovae, stellar winds, ionising radiation and cosmic rays*

T.-E. Rathjen, T. Naab, P. Girichidis, S. Walch, R. Wünsch, F. Dinmbier, D. Seifried, R. S. Klessen, S. C. O. Glover
MNRAS, 504, 1039 (2021)

Total citation count for my top 5 most cited records: 94

TEACHING AND SUPERVISION EXPERIENCE

Supervision

~2024

Co-Supervisor of bachelor thesis “H α -estimated Starformation Rates from Interstellar Medium Simulations” by Simon Littek at University of Cologne

Supervision

Dec. 2022

Co-Supervisor of bachelor thesis “Analyse von Magnetfeldern am Rand von, durch masse-reiche Sterne entstandenen und getriebenen, H II Regionen” by Andreas Wolff at University of Cologne

Tutoring

2023

Tutoring of Advanced Astrophysics at University of Cologne

Tutoring

2015, 2017, 2023

Tutoring of Experimental Physics For Freshmen at University of Cologne

Tutoring

2014 - 2017

Instructor for Freshman Physics Lab Course at University of Cologne

COORDINATION AND MANAGEMENT

Scientific Organising Committee and Chairperson

Sep. 2023

ISM Splinter Session @ Annual Meeting of the Astronomische Gesellschaft 2023, Berlin, Germany

Local Organising Committee

Mar. 2023

RDM - Expert Workshop on synergies between NFDI, ErUM-Data and Helmholtz-DMA @ Max-Planck-Institut für Radioastronomie, Bonn, Germany

ATTENDED CONFERENCES

Invited talks at:

The Feedback-Driven Matter Cycle in Galaxies

Jun. 2024

Heidelberg, Germany

Contributed talks at:

New simulations for new problems in galaxy formation Paris, France	Dec. 2023
Cosmic evolution of matter on all scales Berlin, Germany	Sep. 2023
New Views on Feedback & the Baryon Cycle in Galaxies Melbourne, Australia	Jul. 2023
Olympian Symposium Katerini, Greece	May. 2023
Wheel of Star Formation - Janfest Prague, Czech Republic	Sep. 2022
Breakthroughs in Galaxy Formation Ringberg (online)	Apr. 2022
Zooming in on Star Formation Nafplio, Greece	Jun. 2019
Science Week Universe Cluster Kloster Seeon, Germany	Dec. 2018
Astrophysical Shocks Potsdam, Germany	Mar. 2018

Contributed posters at:

Physics and Chemistry of Star Formation Puerto Varas, Chile	Sep. 2022
From Stars to Galaxies II Gothenburg, Sweden	Jun. 2022

WORKSHOPS AND SCHOOLS AND SEMINARS

Fast and Efficient Python Computing School ErUM-Data-Hub, Aachen, Germany	Aug. 2024
Deep Learning School “Basic Concepts” ErUM-Data-Hub, Wiehl, Germany	Mar. 2024
CS & Physics Meet-Up by Lamarr & B3D Lamarr Institut, TU Dortmund University, Germany	Nov. 2023
AI Training Series - Introduction to the LRZ AI Systems Leibniz Supercomputing Centre, Garching, Germany	Nov. 2023
Advanced Deep Learning “Train-The-Trainer” ErUM-Data-Hub, Wuppertal, Germany	Jun. 2022
Seminar talks at:	
Galaxy Group Lunch Talks Lund (online)	Jan. 2023
CCA Lunch Talks NYC, USA	Feb. 2022
Star Formation/ISM Rendezvous Seminar Princeton, USA	Feb. 2022
Star Formation/ISM Rendezvous Seminar Princeton (online)	Jul. 2021

PUBLIC OUTREACH EVENTS

Public talk @ Astronomy On Tap, Köln, Germany

Das Universum im Computer

Oct. 2023

**Public talk @ Verein für Raumfahrt und Astronomie,
Köln, Germany**

Enthüllung des Galaktischen Theaters

Aug. 2023

Ask A Astronomer @ MS Wissenschaft, Köln, Germany

Wissenschaftsjahr 2023 - Unser Universum

Jul. 2023

**Public talk @ Verein für Raumfahrt und Astronomie,
Köln, Germany**

Das Universum im Computer

Nov. 2022

(Dr. Tim-Eric Rathjen)
March 5, 2024