

# SIMON M. DANNHAUER

Astrophysics PhD Student at the University of Cologne (IMPRS for A&A)

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🌐 simondnhr

## EDUCATION

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PhD Student (Dr. rer. nat.) in Astrophysics

University of Cologne

📅 Nov 2023 – Ongoing

📍 I. Physics Institute

- "Massive star formation and feedback in the Milky Way: Dynamics and physical properties of the Interstellar Medium from observations of ionized and neutral atomic carbon"

As a member of the SFB 1601 and the International Max Planck Research School (IMPRS) I am working with Dr. Robert Simon, Dr. Nicola Schneider and Prof. Dominik A. Riechers on connecting astrophysical scales by feedback.

Max-Planck Institute for Radio Astronomy

📅 Apr 2024 – Ongoing

📍 Guest Contract, MPIfR

Laboratoire d'astrophysique de Bordeaux

📅 Jan 2026

📍 Research Stay, LAB

Research stay hosted by Dr. Timea Csengeri, working on SED fitting of the dusty envelope of the NASCENT-stars cores and the bipolar outflow nebula S106.

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Master of Science (MSc.) in Astrophysics

University Bonn

📅 2021 – 2023

📍 Argelander Institute for Astronomy

- Thesis "Radio AGN fraction in the first eROSITA all-sky survey"
- Research Internship: Report "eROSITA observations of the  $\eta$ -Chamaeleontis star cluster: Catalogue of extended background sources"

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Bachelor of Science (BSc.) in Physics

University Bonn

📅 2015 – 2021

📍 Argelander Institute for Astronomy

- Thesis "Correction of space-weather related effects on eROSITA data"

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## International Collaborations

Member SKAO Working Groups "SWG Extragalactic Continuum", "SWG Our Galaxy"

September 2024-Ongoing

Member NASCENT-stars: "NOEMA Astrochemistry of Cygnus protostars"

February 2024-Ongoing

Member CCAT/FYST: "GEco: Galactic Ecology of the dynamic ISM"

November 2023-Ongoing

Member SOFIA legacy project "FEEDBACK"

November 2023-Ongoing

Member SFB 1601 "Habitats of massive stars across cosmic time"

November 2023-Ongoing

Member Athena Working Group "SWG3: Observatory" (SWG 3.4 SNR and ISM, until 07/24 SWG1.3) April 2023-May 2025

Member eROSITA-DE Collaboration (Cluster Working Group)

May 2022-2024

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## EXPERIENCES AND SKILLS

**Programming languages:** Python, bash, C++ (basics)

**Astronomy packages/software:** astropy, numpy, matplotlib, linmix, emcee, SAOImageDS9, eSASS, TOPCAT, MESA, HEASOFT, GILDAS/CLASS, GILDAS/MAPPING, CASA, CARTA,  $\LaTeX$

## Publications

### First and second author:

N. Schneider, S. Dannhauer, E. Keilmann, *et al.*, "Globules and pillars in Cygnus X - IV. Velocity-resolved [OI] 63  $\mu\text{m}$  map of a peculiar proplyd-like object," *Astronomy and Astrophysics*, vol. 704, A271, 2025. DOI: 10.1051/0004-6361/202557227.

S. M. Dannhauer, S. Vider, N. Schneider, *et al.*, "The Diamond Ring in Cygnus X: Advanced stage of an expanding bubble of ionised carbon," *Astronomy and Astrophysics*, vol. 703, A197, 2025. DOI: 10.1051/0004-6361/202556159.

E. Keilmann, S. Dannhauer, S. Kabanovic, *et al.*, "[CII]-deficit caused by self-absorption in an ionized carbon-filled bubble in RCW79," *Astronomy and Astrophysics*, vol. 697, p. L2, May 2025. DOI: 10.1051/0004-6361/202453445.

### Co-author:

A. Veronica, T. H. Reiprich, F. Pacaud, *et al.*, "The life of central radio galaxies in clusters: AGN-ICM studies of eRASS1 clusters in the ASKAP fields," *Publications of the Astronomical Society of Australia*, vol. 43, e001, 2026. DOI: 10.1017/pasa.2025.10131.

Schneider, Nicola, Ossenkopf-Okada, Volker, Röllig, Markus, *et al.*, "The HI-to-H2 transition in the Draco cloud," *Astronomy and Astrophysics*, vol. 699, A354, 2025. DOI: 10.1051/0004-6361/202555308.

A. Merloni, G. Lamer, T. Liu, *et al.*, "The SRG/eROSITA all-sky survey: First X-ray catalogues and data release of the western Galactic hemisphere," *Astronomy and Astrophysics*, vol. 682, A34, Jan. 2024. DOI: 10.1051/0004-6361/202347165.

Peißker, F., Schneider, N., Kabanovic, S., *et al.*, "Signatures of a hub-filament system located in the Ara constellation: Triggered star formation in RCW 108," *Astronomy and Astrophysics*, *subm.*

My ORCID  0009-0001-2667-2943

## Observing Proposals

	Telescope	Title	Time
PI	NOEMA SS25	"Outflows and shocks in a proplyd in Cygnus"	12.0h <i>acc.</i>
PI	IRAM 30m SS24	"The Diamond Ring in Cygnus X: Composition and Evolution of an unusual ring in CII"	25.4h <i>obs.</i>
Co-I PI: N. Schneider	IRAM 30m SS25/WS25	"Revealing the nature of a proplyd-like object in Cygnus X"	5.4h <i>obs.</i>
Co-I PI: E. Keilmann	APEX SS24	"RCW79: An evolutionary tale of three interstellar bubbles"	17.7h <i>obs.</i>

*subm.*= submitted, *acc.*= accepted, *obs.*= observed

*I have extensive observing experience at the IRAM 30m telescope and VLBI experience at Effelsberg.*

## Conferences & Workshops

Les Houches summer school: From the Interstellar Medium to the Formation of Stars	6. July -31. July 2025
Participant	Les Houches, FR ( <i>scheduled</i> )
European ALMA school	26. -30. January 2026
Participant	Leiden, NL
FEMIS group meeting	15. January 2026
Talk "FEEDBACK and friends"	Bordeaux, FR
CRC1601 Main Colloquia (w/ Dr. Robert Simon)	25. November 2025
Contributed Talk "Studying SF in the Milky Way and Magellanic Clouds, the CCAT and SOFIA connection"	Cologne, GER
CCAT Collaboration Meeting CCM6	1. -3. October 2025
Participant	Cologne, GER ( <i>online</i> )
Stellar Origins 2025	15. -19. September 2025
Poster Presentation	Vienna, AUT
Unlocking ALMA's Potential with Focal Plane Arrays	2. -4. September 2025
Participant	Bonn, GER
Charting the Cosmos: From Cosmic Nurseries to Evolved Stars using High Powered Telescopes	18. -22. August 2025
Poster Presentation + Flash Talk	Ingelheim, GER
International summer school on the ISM of galaxies (GISM3)	21. July -1. August 2025
Participant	Banyuls-sur-Mer, FR
CRC1601 Science Seminar "Comparing observations and simulations"	08. July 2025

<b>Contributed Talk</b> "The 'Diamond Ring': Insights from comparing simulations with observations" <b>Star Formation, Stellar Feedback, and the Ecology of Galaxies (Ballyfest)</b>	Cologne, GER 26. -30. May 2025
<b>Contributed Talk</b> "The future of FEEDBACK: Key findings and outlook" <b>Special Lecture Series "Galactic and Extragalactic Astrochemistry"</b>	Visegrad, HU 31.3. -3. April 2025
by Prof. Serena Viti (Leiden+Bonn), Participant <b>12th IRAM Interferometry School</b>	Bonn, GER 18. -22. November 2024
Participant <b>"Physics and Chemistry of the Interstellar Medium" (PCMI Bordeaux)</b>	Grenoble, FR 28. -31. October 2024
<b>Poster Presentation</b> <b>Workshop "Artificial intelligence for astrochemistry"</b>	Bordeaux, FR 24. -25. October 2024
Participant <b>"Star formation across cosmic time"-Annual Meeting of the German Astronomical Society</b>	Bordeaux, FR (online) 9. -13. September 2024
<b>Contributed Talk</b> "[CII] Bubbles in FEEDBACK: Towards an evolutionary sequence?" <b>IMPRS Black Board Lectures "Manifestations and Physics of Galactic Winds and Outflows"</b>	Cologne, GER 4. -5. September 2024
by Prof. Mark Morris (UCLA), Participant <b>NASCENT-stars Collaboration Kick-Off Meeting</b>	Bonn, GER 27. -28. May 2024
<b>Contributed Talk</b> "Large scale view of Cygnus X: FEEDBACK and PDR modelling" <b>Heritage of SOFIA – Scientific Highlights and Future Perspectives</b>	Bordeaux, FR 22. -26. April 2024
<b>Poster Presentation</b> + <b>Flash Talk</b> <b>Workshop "Introduction to Bayesian Statistical Learning"</b>	Stuttgart, GER 18. -22. March 2024
Jülich Supercomputing Centre (JSC) <b>The X-ray Universe 2023</b>	Jülich, GER (online) 13. -16. June 2023
<b>Poster Presentation</b> <b>20th German eROSITA Consortium meeting 2023</b>	Athens, GR 2. - 5. May 2023
Participant <b>2nd &amp; 3rd Australian/eROSITA-DE Joint Collaboration Workshop</b>	Garching, GER (online) 23. - 24. March 2023
Participant <b>Workshop "Gravitational Waves"</b>	15. - 17. February 2022 6. - 10. Jan 2023
Bethe Center for Theoretical Physics <b>"Astrophysics from Ground to Space"-Annual Meeting of the German Astronomical Society</b>	Bonn, GER 12. - 16. September 2022
Participant	Bremen, GER

## Teaching

I am passionate about teaching and have been continuously tutoring since my third bachelor semester. Some of the courses I have tutored before my PhD are the advanced lab course "*Spectroscopy of Stars*" (Prof. Norbert Langer), the physics bachelor lectures "*Mechanics and Thermodynamics*", "*Electromagnetism*" (Prof. Bernhard Ketzer) and "*Introduction to Extragalactic Astronomy*" (Prof. Peter Schneider) among *many* others. I also took part in peer tutoring in order to improve scientific teaching in the bachelor. During my PhD I participated in teaching for several lectures among them "*Introduction to Astronomy*" and "*Advanced Astrophysics*" (Prof. Dominik Riechers).

## Outreach

<b>Astronomy on Tap Cologne</b>	4th Dec 2025
Public Talk "'Diamonds in the Sky'? Forschung abseits der fertigen Publikation"	Cologne, GER
<b>Press Release University of Cologne</b>	17th Nov 2025
Research news "Astronomers in Cologne unravel the mystery of a cosmic ring"	Cologne, GER
<b>Physikalischer Verein</b>	10th Oct 2025
Public Talk "Diamanten, Fliegende Sternwarten und Erkenntnisgewinn in der Wissenschaft"	Frankfurt, GER
<b>"Zusammen Witzhelden bewegen"</b>	4th Feb 2025
Public Talk "Astronomie aus dem Rheinland im Wandel der Zeit"	Witzhelden, GER
<b>Astronomy on Tap Bonn</b>	21st Jan 2025
Public Talk "Coffee, Crabs and Cathedrals: Massive Star Formation in the Milky Way"	Bonn, GER
<b>Lange Nacht der Astronomie"</b>	19th Oct 2024
Public Talk "Die Supernova in der Kaffeetasse"	Cologne, GER.
<b>eROSITA DR1 Paper Splash</b>	Spring 2024
Press releases and outreach coordination for the first data release	Bonn, GER.
<b>MS Wissenschaft</b>	Spring 2023
Development of a dark matter related exhibit with exercises for pupils as part of the "Wissenschaftsjahr 2023 - Unser Universum" (an initiative of the Ministry of Education and Research).	Bonn, GER
<b>Astronomy on Tap Bonn</b>	31st Jan 2023
Public Talk "The art of (scientific) failure – being so wrong it's right"	Bonn, GER

## Softskill Seminars

- Workshop "Scientific Integrity", BCGS 9th February 2026
- Seminar "Scientific Paper Writing" by Mark Buchanan and Justin Mullins (writeaboutscience.com) 5/6th March 2025
- Seminar "Scientific Writing" by Prof. Peter Schneider, IMPRS for A&A 3rd Nov 2023
- Workshop "Tutoring for Physicists", Bonn Center for Higher Education Mar 2023

## AWARDS & HONORS

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- Poster Award 'Charting the Cosmos' Conference 08/2025
- International Max Planck Research School Fellowship (IMPRS for A&A) 02/2024
- Abiturpreis of the German Physical Society (DPG) 08/2015

## EXTRACURRICULAR ACTIVITIES

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### Work experience:

- Digital Strategist NRW-SPD 2021–2023

### Academic:

- IMPRS Student Representative for Cologne May 2024–Ongoing
- Member SFB 1601 Diversity Board 2023–Ongoing
- Co-Chair SFB1601 SWG "Stellar Feedback/Magnetic Fields" May 2024–2025
- Member Local Organizing Committee AG2024 Summer 2024
- Member SFB 1601 Student Council 2023–2025
- Deputy student representative AlfA 2021–2022
- Member AlfA DEI committee 2023–2023
- Telescope Licence Examiner for the AlfA roof-top observatory 2021–2023
- Member of several appointment committees 2021–2023

### Volunteering:

- Maintenance director aviation club Luftsportverein Lindlar (LSV Lindlar) 2018–Ongoing
- Public Relations LSV Lindlar 2015–2022
- Youth Leader LSV Lindlar 2013–2015

**Memberships:** DPG, EAS, AG, VdS

**Other interests:** Gliding, hiking, photography and astrophotography, the latter one in a small amateur observatory

## REFEREES

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### Dr. Robert Simon

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### Dr. Nicola Schneider

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### Prof. Dr. Dominik Riechers

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### Dr. Timea Csengeri

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✉ Laboratoire d'astrophysique de Bordeaux (LAB), Allée Geoffroy Saint-Hilaire, F-33615 Pessac

### Prof. Dr. Thomas Reiprich

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