

SIMON M. DANNHAUER

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

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EDUCATION

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.

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 η -Chamaeleontis star cluster: Catalogue of extended background sources"

Bachelor of Science (BSc.) in Physics

University Bonn

📅 2015 – 2021 📍 Argelander Institute for Astronomy

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

International Collaborations

Member SKAO Working Groups "SWG Extragalactic Continuum", "SWG Our Galaxy"	09/2024-Ongoing
Core-member NASCENT-stars: "NOEMA Astrochemistry of Cygnus protostars"	02/2024-Ongoing
Member CCAT/FYST: "GEco: Galactic Ecology of the dynamic ISM"	11/2023-Ongoing
Member SOFIA legacy project "FEEDBACK"	11/2023-Ongoing
Member SFB 1601 "Habitats of massive stars across cosmic time"	11/2023-Ongoing
Member (New-)Athena Working Group "SWG3: Stars and their environment"	04/2023-05/2025, 04/2026-Ongoing
Member eROSITA-DE Collaboration (Cluster Working Group)	05/2022-2024

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 μ 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.

L. Bonne, N. Schneider, **S. Dannhauer**, *et al.*, "Molecular cloud dispersal traced by the ionized carbon 158 μ m line," *Astronomy and Astrophysics*, vol. 711, A304, 2026. DOI: 10.1051/0004-6361/202659930.

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.*, "The embedded cluster RCW108: I. An ALMA perspective on feedback-associated compact cores," *Astronomy and Astrophysics*, *subm.*

Observing Proposals

	Telescope	Title	Time
PI	CCAT/FYST Summer 2026	"GEco Early Science: The carbon budget of M17-NE"	8.5h <i>acc.</i>
PI	CCAT/FYST Summer 2026	"GEco Early Science: ISM and PDR physics in Mon R2"	3.0h <i>acc.</i>
PI	NOEMA+30m SS25	"Outflows and shocks in a proplyd in Cygnus"	21.5h <i>obs.</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: W. Kim	APEX 2026B	"Solving the chemical mysteries of CF+ in M17 SW: Is it a tracer of neutral or ionized carbon?"	15.0h <i>acc.</i>
Co-I PI: R. Simon	CCAT/FYST Summer 2026	"GEco Early Science: HMSFRs and IVCs/HVCs"	54.9h <i>acc.</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 2024A	"RCW79: An evolutionary tale of three interstellar bubbles"	17.7h <i>obs.</i>

Observing experience:

- 08/2026, IRAM 30m, EMIR — 8 h, project (remote)
- 04/2025, Effelsberg 100m, P3mm — 4 nights, GMVA campaign (on-site)
- 03/2025, IRAM 30m, EMIR — 60 h, project (on-site)
- 11/2024, IRAM 30m, EMIR — 24 h, project (on-site)
- 08/2024, IRAM 30m, Heterodyne Pool — 7 nights pool observing + 21 h project (remote)

Technical experience:

- 05–06/2026, CCAT/FYST, Cerro Chajnantor — commissioning, pointing camera and weather station

Conferences, Talks & Workshops

Orion & Beyond: Ionization & Winds in HII Region

Invited Participant + Chair

ARI Institute Colloquia

Invited Talk "Climbing the Ladder: Stellar Feedback from SOFIA to CCAT/FYST"

The Future of PDR Modelling - Current Challenges and Next Steps

Invited Participant

Cologne-Bonn Symposium on the habitats of massive stars across cosmic time

Contributed Talk "The lifecycle of molecular clouds as seen by FEEDBACK" + **Poster Presentation**

Les Houches summer school: From the Interstellar Medium to the Formation of Stars

Participant + **Contributed Talk** "Feedback-mediated accretion in S106"

Valongo Observatory (UFRJ) Main Colloquia

Invited Talk "The lifecycle of molecular clouds as seen by FEEDBACK"

European ALMA school

Participant

FEMIS group meeting

Talk "FEEDBACK and friends"

CRC1601 Main Colloquia (w/ Dr. Robert Simon)

Contributed Talk "Studying SF in the Milky Way and Magellanic Clouds, the CCAT and SOFIA connection" **Cologne, GER**

CCAT Collaboration Meeting CCM6

Participant

Stellar Origins 2025

Poster Presentation

Unlocking ALMA's Potential with Focal Plane Arrays

Participant

Charting the Cosmos: From Cosmic Nurseries to Evolved Stars using High Powered Telescopes

Poster Presentation + **Flash Talk**

International summer school on the ISM of galaxies (GISM3)

Participant

CRC1601 Science Seminar "Comparing observations and simulations"

Contributed Talk "The 'Diamond Ring': Insights from comparing simulations with observations"

Star Formation, Stellar Feedback, and the Ecology of Galaxies (Ballyfest)

Contributed Talk "The future of FEEDBACK: Key findings and outlook"

Special Lecture Series "Galactic and Extragalactic Astrochemistry"

by Prof. Serena Viti (Leiden+Bonn), Participant

12th IRAM Interferometry School

Participant

"Physics and Chemistry of the Interstellar Medium" (PCMI Bordeaux)

Poster Presentation

Workshop "Artificial intelligence for astrochemistry"

Participant

"Star formation across cosmic time"-Annual Meeting of the German Astronomical Society

Contributed Talk "[CII] Bubbles in FEEDBACK: Towards an evolutionary sequence?"

IMPRS Black Board Lectures "Manifestations and Physics of Galactic Winds and Outflows"

by Prof. Mark Morris (UCLA), Participant

NASCENT-stars Collaboration Kick-Off Meeting

Contributed Talk "Large scale view of Cygnus X: FEEDBACK and PDR modelling"

Heritage of SOFIA – Scientific Highlights and Future Perspectives

Poster Presentation + **Flash Talk**

Workshop "Introduction to Bayesian Statistical Learning"

Jülich Supercomputing Centre (JSC)

The X-ray Universe 2023

Poster Presentation

20th German eROSITA Consortium meeting 2023

Participant

2nd & 3rd Australian/eROSITA-DE Joint Collaboration Workshop

Participant (online)

Workshop "Gravitational Waves"

Bethe Center for Theoretical Physics

"Astrophysics from Ground to Space"-Annual Meeting of the German Astronomical Society

Participant

25. -29. Januar 2027

Leiden, NL (scheduled)

10. December 2026

Heidelberg, GER (scheduled)

16. -20. November 2026

Leiden, NL

17. -21. August 2026

Cologne, GER

6. -31. July 2026

Les Houches, FR

23. June 2026

Rio de Janeiro, BR

26. -30. January 2026

Leiden, NL

15. January 2026

Bordeaux, FR

25. November 2025

Cologne, GER

1. -3. October 2025

Cologne, GER (online)

15. -19. September 2025

Vienna, AUT

2. -4. September 2025

Bonn, GER

18. -22. August 2025

Ingelheim, GER

21. July -1. August 2025

Banyuls-sur-Mer, FR

8. July 2025

Cologne, GER

26. -30. May 2025

Visegrad, HU

31.3. -3. April 2025

Bonn, GER

18. -22. November 2024

Grenoble, FR

28. -31. October 2024

Bordeaux, FR

24. -25. October 2024

Bordeaux, FR (online)

9. -13. September 2024

Cologne, GER

4. -5. September 2024

Bonn, GER

27. -28. May 2024

Bordeaux, FR

22. -26. April 2024

Stuttgart, GER

18. -22. March 2024

Jülich, GER (online)

13. -16. June 2023

Athens, GR

2. - 5. May 2023

Garching, GER (online)

23. - 24. March 2023

15. - 17. February 2022

6.- 10. Jan 2023

Bonn, GER

12. - 16. September 2022

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

Cologne-Bonn Symposium Public Event	19th Aug 2026
Public Talk "Astronomie in luftiger Höhe"	Cologne, GER
Astronomy on Tap Cologne	4th Dec 2025
Public Talk "'Diamonds in the Sky'? Forschung abseits der fertigen Publikation"	Cologne, GER
Press Release University of Cologne	17th Nov 2025
Research news "Astronomers in Cologne unravel the mystery of a cosmic ring"	Cologne, GER
Physikalischer Verein	10th Oct 2025
Public Talk "Diamanten, Fliegende Sternwarten und Erkenntnisgewinn in der Wissenschaft"	Frankfurt, GER
"Zusammen Witzhelden bewegen"	4th Feb 2025
Public Talk "Astronomie aus dem Rheinland im Wandel der Zeit"	Witzhelden, GER
Astronomy on Tap Bonn	21st Jan 2025
Public Talk "Coffee, Crabs and Cathedrals: Massive Star Formation in the Milky Way"	Bonn, GER
Lange Nacht der Astronomie"	19th Oct 2024
Public Talk "Die Supernova in der Kaffeetasse"	Cologne, GER.
eROSITA DR1 Paper Splash	Spring 2024
Press releases and outreach coordination for the first data release	Bonn, GER.
MS Wissenschaft	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
Astronomy on Tap Bonn	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 & GRANTS

SFB1601 Student Exchange Grant/ Germany, 12/2025 (1150€)	12/2025
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

Work experience:

• Digital Strategist NRW-SPD	2021–2023
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Academic:

• CCAT/FYST Commissioning + Pointing Camera	0/2025–Ongoing
• Early/Mid-Career Researcher Representative, Excellence University On-Site Visit	02/2026–05/2026
• SOC/LOC IMPRS Retreat 2025	10/2025
• IMPRS for A&A Student Representative for Cologne	05/2024–05/2026
• Member SFB 1601 Diversity Board	2023–Ongoing
• Co-Chair SFB1601 SWG "Stellar Feedback/Magnetic Fields"	05/2024–2025
• 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. 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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