

Pooneh Nazari

[Personal website](#)

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ESO Headquarters,
Karl-Schwarzschild-Strasse 2, 85748,
Garching

Positions

ESO Fellow Garching, Germany	2023–present
IAU Gruber Foundation Fellow	2023–present

Education

Leiden University Ph.D. in Astrophysics Promotor: Prof. Ewine van Dishoeck – Thesis: “ Bridging the gap between physics and chemistry in early stages of star formation ”	Leiden, Netherlands 2019–2023
University of Cambridge MPhil in Astrophysics Supervisor: Prof. Cathie Clarke – Thesis: “Observational consequences of planet migration”	Cambridge, UK 2018–2019
MASc (Part III) in Astrophysics	2017–2018
University of St Andrews B.Sc. in Astrophysics	St Andrews, UK 2013–2017

Research Interests

Interstellar molecules, Planet formation, Submillimetre and infrared astronomy, Astrochemistry

Publications

I have **24** publications with **10** as first author and **8** as second to fourth author. H-index = 9, total citations > 350, first-author citations > 100. See the full list at the end of the CV.

Talks

I have given **26** talks including **9** invited. See the full list at the end of the CV.

Awards

▪ Gruber Foundation Fellowship	2023–2025
▪ ESO Fellowship	2023–2026
▪ Funding from Leids Kerkhoven-Bosscha Fonds (LKBF)	2022
▪ Sheepshanks Scholarship and Studentship in Astronomy (Trinity College, Cambridge)	2017–2018
▪ Harvard Origins of Life Initiative Undergraduate Research Award	2017

- The Astrophysics Project Prize (University of St Andrews) 2017
- Royal Astronomical Society Undergraduate Research Bursary (University of St Andrews) 2015

Observing programs

I am a **PI of 16.9 hours** of JWST NIRSpec-IFU observations and **Co-I of 243 hours** of JWST NIRCам, NIRSpec, and MIRI observations.

Major collaborations

- HEFE: High Angular Resolution observations of Stellar Emergence in Filamentary Environments 2024–present
 PI: T. Megeath
 JWST NIRCам, NIRSpec, and MIRI-MRS large program of the OMC2/3 region
- COMPASS: Complex Organic Molecules in Protostars with ALMA Spectral Surveys 2023–present
 PI: J. K. Jørgensen
 ALMA large program and NIRSpec MOS medium program of 11 protostars
- JOYS+: Jwst Observations of Young protoStars 2023–present
 PIs: E. F. van Dishoeck; M.E. Ressler; T. P. Ray; T. P. Greene
 Combination of MIRI-MRS and NIRSpec-IFU observations of ~30 protostars
- IPA: Investigating Protostellar Accretion JWST program 2023–present
 PI: T. Megeath
 MIRI-MRS and NIRSpec-IFU observations of 5 protostellar systems

Research visits

- Frequent research visits to University of Copenhagen 2023–present
- Extended research visit, Harvard University Oct 2022–Nov 2022
- Research visits, Universities of St Andrews, Cambridge, and Harvard University Summers 2015–2018

Supervision

- One LEAPS student Summer 2021
Leiden Observatory
- Three MSc students 2020–2022
Leiden Observatory

Teaching

- Teaching Assistant of 'Astrochemistry' course taught by Prof. Ewine van Dishoeck 2022
Leiden Observatory
- Teaching Assistant of 'Star and Planet Formation' course taught by Prof. Ewine van Dishoeck and Dr. Melissa McClure 2020, 2021, 2022
Leiden Observatory

Selected outreach and service activities

- Reviewer for Astronomy & Astrophysics
- Organiser of the NOVA Network II seminars in the Netherlands, 2019-2022
- Main author of a [CASSIS manual](#), 2022
- ALMA proposal reviewer, 2021-2023
- Invited talk at Astronomy on Tap, 2021
- Author at [She Speaks Science](#), 2018

Presentations

I have given 26 talks, including 9 *invited*.

- **Invited talk at Villa Vigoni workshop** Villa Vigoni, 2024
'Complex organic molecules in the gas and ices around protostars'
- **Invited talk at Celebrating 30 Years of Protoplanetary Disk Chemistry** Ringberg, 2024
'Bridging the gap between physics and chemistry in early stages of star formation'
- **PhD Colloquium** Leiden University, 2024
'Bridging the gap between physics and chemistry in early stages of star formation'
- **Star and Planet Formation Seminar** ESO, 2024
'Bridging the gap between physics and chemistry in early stages of star formation'
- **Invited talk at Workshop on Interstellar Catalysis** Aarhus, 2023
'Complex organic molecules around protostars'
- **NOVA Network II seminar** Netherlands, 2023
'Complex organic molecules around protostars'
- **Blaauw workshop** University of Groningen, 2023
'Evidence for ubiquitous carbon grain destruction around young protostars'
- **Origins seminar series** University of Arizona, 2022
'Complex organic molecules around low- and high-mass protostars'
- **Lunch talk** University of Virginia/NRAO, 2022
'Complex organic molecules around low- and high-mass protostars'
- **Star and planet formation meeting** University of Michigan, 2022
'Complex organic molecules around low- and high-mass protostars'
- **Star formation journal club** Harvard University, 2022
'Complex organic molecules around low- and high-mass protostars'
- **Disk and Astrochemistry meeting** Harvard University, 2022
'Complex organic molecules around low- and high-mass protostars'
- **Invited talk at Niels Bohr Legacy Symposium in Astrochemistry** Copenhagen University, 2022
'Complex organic molecules toward low- and high-mass protostars'
- **Invited talk at Astrochemistry Seminar** Leiden University, 2022
'Can disks explain lack of COM emission from low-mass protostars?'
- **Invited talk at Iranian National Observatory workshop** Online, 2022
'Astrochemistry in the embedded phase of star formation'
- **Invited talk at InterCat Centre meeting** Online, 2021
'N-bearing complex organic molecules: From low- to high-mass protostars'
- **Star formation meeting** Leiden University, 2021

- 'Methanol emission from protostars: Can disks explain lack of emission from some sources?'*
- **Informal seminar at Centre for Star and Planet Formation** Copenhagen University, 2021
'Complex organic molecules: From low- to high-mass protostars'
 - **Contributed talk at Chemical processes in Solar-type star forming regions** Torino, 2021
'Complex organic molecules: From low- to high-mass protostars'
 - **Contributed talk at Astrochemical Frontiers** Online, 2021
'Methanol emission from protostars: Can disks explain lack of emission from some sources?'
 - **Invited talk at Astrochemistry Seminar** Leiden University, 2021
'Complex organic molecules in low-mass protostars'
 - **Contributed talk at ALMA day** Leiden University, 2021
'Complex organic molecules in low-mass protostars'
 - **Contributed talk at Five Years After HL Tau** Online, 2020
'Observational consequences of planet migration'
 - **Seminar at Institute of Astronomy** University of Cambridge, 2020
'N-bearing complex organic molecules in low-mass protostars'
 - **Contributed talk at Trinity forum, Trinity college** University of Cambridge, 2019
'Observational consequences of planet migration'
 - **Invited talk at Kavli Institute** University of Cambridge, 2019
'Observational consequences of planet migration'

Publications

I have 24 publications with 10 as first author and 8 as second to fourth author. H-index = 9, total citations > 300, first-author citations > 100.

First author

10. **P. Nazari**, B. Tabone, A. Ahmadi, S. Cabrit, E. F. van Dishoeck, C. Codella, J. Ferreira, L. Podio, Ł. Tychoniec, and M. L. van Gelder, "[ALMA view of the L1448-mm protostellar system on disk scales: CH₃OH and H¹³CN as new disk wind tracers](#)", *Accepted for publication in A&A*, 2023
9. **P. Nazari**, B. Tabone, G. P. Rosotti, and E. F. van Dishoeck, "Physical factors can change the observed correlation among complex organics around protostars", *Submitted to A&A*, 2023
8. **P. Nazari**, W. R. M. Rocha, A. E. Rubinstein, K. Slavicinska, M. G. Rachid, E. F. van Dishoeck, S. T. Megeath, R. Gutermuth, *et al.*, "[Hunt for complex cyanides in protostellar ices with JWST: Tentative detection of CH₃CN and C₂H₅CN](#)", *Accepted for publication in A&A*, 2023, [See press release](#)
7. **P. Nazari**, J. S. Y. Cheung, J. Ferrer Asensio, N. M. Murillo, E. F. van Dishoeck, J. K. Jørgensen, T. L. Bourke, K.-J. Chuang, *et al.*, "[A deep search for large complex organic species toward IRAS16293-2422 B at 3 mm with ALMA](#)", *Accepted for publication in A&A*, 2023
6. **P. Nazari**, B. Tabone, M. L. R. van't Hoff, J. K. Jørgensen, and E. F. van Dishoeck, "[Evidence for Ubiquitous Carbon Grain Destruction in Hot Protostellar Envelopes](#)", *ApJ Letters*, vol. 951, L38, 2023
5. **P. Nazari**, B. Tabone, and G. P. Rosotti, "[Importance of source structure on complex organics emission. III. Effect of disks around massive protostars](#)", *A&A*, vol. 671, A107, 2023

4. **P. Nazari**, J. D. Meijerhof, M. L. van Gelder, A. Ahmadi, E. F. van Dishoeck, B. Tabone, D. Langeroodi, N. F. W. Ligterink, J. Jaspers, M. T. Beltrán, G. A. Fuller, Á. Sánchez-Monge, and P. Schilke, “[N-bearing complex organics toward high-mass protostars. Constant ratios pointing to formation in similar pre-stellar conditions across a large mass range](#)”, *A&A*, vol. 668, A109, 2022
3. **P. Nazari**, B. Tabone, G. P. Rosotti, M. L. van Gelder, R. Meshaka, and E. F. van Dishoeck, “[Importance of source structure on complex organics emission. II. Do disks explain lack of methanol emission from low-mass protostars?](#)”, *A&A*, vol. 663, A58, 2022
2. **P. Nazari**, M. L. van Gelder, E. F. van Dishoeck, B. Tabone, M. L. R. van't Hoff, N. F. W. Ligterink, H. Beuther, A. C. A. Boogert, A. Caratti o Garatti, P. D. Klaassen, H. Linnartz, V. Taquet, and Ł. Tychoniec, “[Complex organic molecules in low-mass protostars on Solar System scales. II. Nitrogen-bearing species](#)”, *A&A*, vol. 650, A150, 2021
1. **P. Nazari**, R. A. Booth, C. J. Clarke, G. P. Rosotti, M. Tazzari, A. Juhasz, and F. Meru, “[Revealing signatures of planets migrating in protoplanetary discs with ALMA multiwavelength observations](#)”, *MNRAS*, vol. 485, pp. 5914–5923, 2019

Second-Fourth author

8. A. E. Rubinstein, H. Tyagi, **P. Nazari**, R. Gutermuth, S. Federman, M. Narang, W. R. M. Rocha, N. Brunken, K. Slavicinska, *et al.*, “[IPA. Class 0 Protostars Viewed in CO Emission Using JWST/NIRSpec](#)”, *Submitted to ApJ*, 2023
7. M. L. van Gelder, M. E. Ressler, E. F. van Dishoeck, **P. Nazari**, B. Tabone, J. H. Black, Ł. Tychoniec, L. Francis, M. Barsony, *et al.*, “[JOYS+: mid-infrared detection of gas-phase SO₂ emission in a low-mass protostar: The case of NGC 1333 IRAS2A: hot core or accretion shock?](#)”, *Accepted to A&A*, 2023
6. Y. Chen, M. L. van Gelder, **P. Nazari**, *et al.*, “[CoCCoA: Complex Chemistry in hot Cores with ALMA. Selected oxygen-bearing species](#)”, *A&A*, vol. 678, A137, 2023
5. N. G. C. Brunken, A. S. Booth, M. Leemker, **P. Nazari**, N. van der Marel, and E. F. van Dishoeck, “[A major asymmetric ice trap in a planet-forming disk. III. First detection of dimethyl ether](#)”, *A&A*, vol. 659, A29, 2022, [See press release](#)
4. M. L. van Gelder, **P. Nazari**, B. Tabone, A. Ahmadi, E. F. van Dishoeck, M. T. Beltrán, G. A. Fuller, N. Sakai, Á. Sánchez-Monge, P. Schilke, Y.-L. Yang, and Y. Zhang, “[Importance of source structure on complex organics emission. I. Observations of CH₃OH from low-mass to high-mass protostars](#)”, *A&A*, vol. 662, A67, 2022
3. M. L. van Gelder, J. Jaspers, **P. Nazari**, A. Ahmadi, E. F. van Dishoeck, M. T. Beltrán, G. A. Fuller, Á. Sánchez-Monge, and P. Schilke, “[Methanol deuteration in high-mass protostars](#)”, *A&A*, vol. 667, A136, 2022
2. F. Meru, G. P. Rosotti, R. A. Booth, **P. Nazari**, and C. J. Clarke, “[Is the ring inside or outside the planet?: the effect of planet migration on dust rings](#)”, *MNRAS*, vol. 482, pp. 3678–3695, 2019, [See press release](#)
1. J. D. Ilee, C. J. Cyganowski, **P. Nazari**, T. R. Hunter, C. L. Brogan, D. H. Forgan, and Q. Zhang, “[G11.92-0.61 MM1: a Keplerian disc around a massive young proto-O star](#)”, *MNRAS*, vol. 462, pp. 4386–4401, 2016, [See press release](#)

Other co-author

6. N. G. C. Brunken, W. R. M. Rocha, E. F. van Dishoeck, S. T. Megeath, R. Gutermuth, H. Tyagi, K. Slavicinska, **P. Nazari**, M. Narang, P. Manoj, A. E. Rubinstein, *et al.*, “JWST observations of $^{13}\text{CO}_2$ ice: Tracing the chemical environment and thermal history of ices in protostellar envelopes”, *Submitted to A&A*, 2023
5. M. Narang, P. Manoj, H. Tyagi, *et al.*, “Investigating Protostellar Accretion across the mass spectrum with the JWST: discovery of a collimated jet from the low luminosity protostar IRAS 16253-2429 in a quiescent accretion phase”, *Submitted to ApJ Letters*, 2023
4. E. F. van Dishoeck, S. Grant, B. Tabone, *et al.*, “The diverse chemistry of protoplanetary disks as revealed by JWST”, *Faraday Discussions*, vol. 245, pp. 52–79, 2023
3. G. M. Williams, C. J. Cyganowski, C. L. Brogan, T. R. Hunter, **P. Nazari**, and R. J. Smith, “ALMA observations of the Extended Green Object G19.01-0.03 - II. A massive protostar with typical chemical abundances surrounded by four low-mass pre-stellar core candidates”, *MNRAS*, vol. 525, pp. 6146–6169, 2023
2. G. M. Williams, C. J. Cyganowski, C. L. Brogan, T. R. Hunter, J. D. Ilee, **P. Nazari**, J. M. D. Kruijssen, R. J. Smith, and I. A. Bonnell, “ALMA observations of the Extended Green Object G19.01-0.03 - I. A Keplerian disc in a massive protostellar system”, *MNRAS*, vol. 509, pp. 748–762, 2022
1. A. J. Cridland, G. P. Rosotti, B. Tabone, Ł. Tychoniec, M. McClure, **P. Nazari**, and E. F. van Dishoeck, “Early planet formation in embedded protostellar disks. Setting the stage for the first generation of planetesimals”, *A&A*, vol. 662, A90, 2022