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## Research Interests

- Star Formation
- Astrochemistry and Origin of Life
- Physics and Chemistry of Interstellar Medium
- Magellanic System and its Interaction with Milky Way
- Impact of Environmental Condition on Star Formation

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## Education

- 2019 - 2025 **Ph.D. in Physics** 1<sup>st</sup> Physics Institute (PH1), University of Cologne (UoC), Germany
- *High-mass star formation across the Large Magellanic Cloud*
  - Supervisors: Prof. Dr. Peter Schilke & Dr. Alvaro Sanchez-Monge
  - funded ~ **200.000 €** via **DFG founding project**
- 2012 - 2015 **M.Sc. in Physics** Isfahan University of Technology (IUT), Iran
- *Star formation history and dust input mass in NGC 147 and NGC 185*
  - Supervisor: Dr. Atefeh Javadi & Prof. Dr. Behrouz Mirza
- 2008 - 2012 **B.Sc. in Physics** IUT
- 2004 - 2008 **Diploma in Mathematics-Physics** BeheshtAien High School, Isfahan, Iran

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## Further Research Experiences

- 4/2018 - 9/2019 **Internship** PH1, UoC
- *ALMA view of N159 star forming region*
- 11/2017 - 2/2018 **Internship** PH1, UoC
- *Correlation of CII and CO isotopologues in Orion Molecular Cloud*
- 2014 - 2016 **Research Assistant** Institute for Research in Fundamental Sciences (IPM), Iran
- *Star formation history and dust input mass in the Local Group dwarf galaxies*

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## Supervising & Teaching Experiences

- 4/2021 - 9/2021 **Co-Supervisor of Two Bachelor Theses** PH1, UoC
- *Characterizing the Infrared Emission of Young Stellar Objects (YSOs) in the Milky Way*
  - *Studying the Kinematics of the Gas Around a Hot Molecular Core in the LMC*
- Teaching Assistant**
- 10/2021-2/2022 • *Advanced Astrophysics*, UoC
- 2011 & 2012 • *Basic Quantum Mechanics*, IUT

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## Proposals Granted Funding or Time

### Funding

- 2024 **DFG** ~ 50.000 €, *Molecular complexity in low-metallicity astrophysical environments* (Co-I)
- 2022 **IAU OAD** ~ 3.000 €, *ZagrosRISE- Reviving and Integrating Solar Energy in the Zagros region* (Co-I)

### Observation

- 2025 **APEX** 10 h, *Confirming molecular gas in the Leading Arm of Magellanic Clouds* (PI)
- 2024 **ATCA** 49 h, *Searching for masers in the outer-Galaxy star forming region G274* (Co-I)
- 2024 **APEX** 27 h, *Hunting molecular gas in the Leading Arm of Magellanic Clouds* (PI)
- 2024 **SOAR** 10 h, *Investigating the impact of metallicity on complex organic chemistry* (Co-I)
- 2023 **ALMA** 4.9 h, *Exploring the chemical composition of the 'organic-rich' hot cores in the LMC* (Co-I)
- 2023 **JWST** 17.8 h, *Ice observations toward low-metallicity hot molecular cores in the LMC* (Co-I)
- 2022 **APEX** 22.7 h, *High-Mass cluster formation in the Magellanic Bridge* (Co-I)
- 2021 **ATCA** 16 h, *The evolutionary sequence of massive dense cores in the LMC* (PI)
- 2019 **ALMA** 3.4 h, *The quest for bona fide hot cores in the LMC* (Co-I)

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## Skills & Qualifications

### Computer

- Programming Languages: Python, C++, Super Mongo(SM), Bash, SQL
- Astronomical Software/Models: CASA, CARTA, DS9
- XCLASS, Paris-Durham Shock Code, Padova Stellar Evolution Models, DUSTY

**Languages:** Farsi: Mother Tongue - English: Advanced - German: Intermediate

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## Soft Skills Training & Voluntary Work

### Participant (just a small selection)

- 2/2023 (3 days)  
Year 2020
- *Communication and negotiation in difficult situations workshop*, UoC
  - *Mentoring program for international female scholars*, UoC

### Volunteer

- 2020 - present  
8/2022 - present
- *Astronomy on Tap Köln* Astronomy for Public
  - *Ombudsperson at the anti-discrimination board* Physics Department, UoC

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## Schools, Conferences & Visits

### Visitor Student

- 5-6,11-12/2024  
7-8/2023  
6/2015
- Durham University, Durham, United Kingdom
  - Institute of Space Sciences, Barcelona, Spain
  - ESO, Garching, Germany

### Contributed Talks

- 10/2022  
6/2015
- *Hot cores with complex chemistry in the LMC Bar*  
"From Clouds to Planets II: The Astrochemical Link" Conference
  - *Star formation history in low metallicity dwarf galaxies: NGC 147 and NGC 185*  
"Galaxies of Many Colours: Star Formation Across Cosmic Time" Conf.

### Poster Presentations

- 1/2021  
10/2019  
6/2015
- *A census of molecular cores and complex organic molecules in the LMC*  
"43<sup>rd</sup> COSPAR Scientific Assembly, Connecting Space Research for Global Impact" Conf.
  - *Observations of 20 YSOs in the LMC; searching for extra-galactic hot cores*  
"ALMA Conference; Science Results and Cross Facilities Synergy" Conf.
  - *Star formation history and feedback from dusty stellar wind: NGC 147 and NGC 185*  
"Physics of Evolved Stars" Conf.

### Dedicated Grants

- 7/2023  
6/2023  
6/2022  
7/2019  
9/2015  
7/2015  
6/2015
- **ICE & CSIC Grant** "Life Cycle of Dust", Barcelona, Spain
  - **NanoSpace Grant** "COST NanoSpace JWST Training School", IAC-tec, Tenerife, Spain
  - **ÉNS Grant** "Interstellar Shocks" Summer School, Les Houches, France
  - **PROM Grant** to attend "TASQ" Summer School, Nicolaus Copernicus University, Poland
  - **IAU Grant** "ESO/OPTICON/IAU" Summer School, Brno University, Czech Republic
  - **ESO and RadioNet Grant** "Stellar End Products: Low - High Mass Connection" Conf.
  - **RadioNet Grant** "Galaxies of Many Colours: Star Formation across Cosmic Time" Conf.

## Publications

### Submitted

- 2025 • *High-mass star formation across the Large Magellanic Cloud II. Dense cores and clusters with ALMA at 1.2 mm*  
**R. Hamedani Golshan**, A. Sanchez-Monge, P. Schilke, et al.,
- 2025 • *Long-period variable stars in NGC 147 and NGC 185 II. Their dust production*  
**H. Mahani**, A. Javadi, ..., **R. Hamedani Golshan**, et al.,

### Refereed

- 2024 • *The Complex Star Formation History of the Halo of NGC 5128 (Cen A)*  
S. Taefi Aghdam, A. Javadi, ..., **R. Hamedani Golshan**, et al., ApJ, 972, 47A
- 2024 • *High-mass star formation across the Large Magellanic Cloud I. Chemical properties and hot molecular cores observed with ALMA at 1.2 mm*  
**R. Hamedani Golshan**, A. Sanchez-Monge, P. Schilke, et al., A&A, 688A, 3G
- 2022 • *ALMA Observations of molecular complexity in the LMC: The N105 star-forming region*  
M. Sewilo, M. Cordiner, ..., **R. Hamedani Golshan**, et al., ApJ, 931, 102
- 2019 • *Complex organic molecules in star-forming regions of the Magellanic Clouds*  
M. Sewilo, S. B. Charnely, P. Schilke, et al., and **R. Hamedani Golshan**, ESC, 3.2088S
- 2017 • *Long period variable stars in NGC 147 and NGC 185. I. Their star formation histories*  
**R. Hamedani Golshan**, A. Javadi, J. Th. van Loon, et al., MNRAS, 466, 1764
- 2017 • *The UKIRT M33 monitoring project. V. The star formation history across the galactic disc*  
A. Javadi, J. Th. van Loon, ..., **R. Hamedani Golshan**, et al., MNRAS, 464, 2103

### Proceedings

- 2025 • *Deciphering Galactic Halos: A Detailed Review of Star Formation in NGC 5128 (Cen A)*  
M. Abdollahi, S. T. Aghdam, ..., **R. Hamedani Golshan**, et al. CoBAO, 71, 345A
- 2018 • *The Local Group dwarf galaxies: the star formation histories derived using the LPV stars*  
E. Saremi, A. Javadi, et al., and **R. Hamedani Golshan**, IAU General Assembly, IAUS344
- 2015 • *Pulsating red giants and supergiants as probes of galaxy formation and evolution*  
J. Th. van Loon, et al., and **R. Hamedani Golshan**, IAU General Assembly, Meeting 29, 2255327
- 2014 • *Star formation history and dust production: NGC 147 and NGC 185*  
**R. Hamedani Golshan**, A. Javadi, et al., Asia-Pacific International Regional IAU Meeting