

Maitraiye Tiwari

Date of birth: 01-10-1992

Nationality: Indian

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Education

- 2016 – present ■ **Doctoral research at the Max Planck Institute for Radio Astronomy, Bonn, Germany** in Astronomy and astrophysics.
Advisors: Prof. Dr. Karl. M Menten and Dr. Friedrich Wyrowski.
Thesis working title: *Unveiling the remarkable photodissociation region of Messier 8.*
- 2013 – 2015 ■ **M.Sc. in Physics at the Indian Institute of Technology (IIT), Hyderabad, India.**
Advisor: Prof. Dr. Manish Niranjana
Thesis title: *Electronic structure, work functions and surface energetics of titanium-silicides.*
Secured the second rank in the batch with a CGPA of 9.11/10.
- 2010 – 2013 ■ **B.Sc. in Physical Sciences at the St. Stephen's College, Delhi University, India.**
Secured an overall score of 84.10%.

Academic achievements

- 2016 – 2018 ■ Selected as a member of the honours branch of Bonn-Cologne Graduate School of Physics and Astronomy: **supplementary of 300 Euros/month and a personal research budget of 1000 Euros for two years.**
- Selected as a member of International Max Planck Research School (IMPRS). Bonn, Germany.
- 2015 ■ Cleared the national level exam 'Joint Entrance Screening Test (JEST)' with an All India Rank (AIR) 333 in Physics.
- Cleared the national level exam 'Graduate Aptitude Test in Engineering (GATE)' with an All India Rank (AIR) 591 in Physics.
- **Received the academic excellence award in Physics at IIT, Hyderabad, India.**
- 2013 ■ Cleared the national level exam 'Joint Entrance Screening Test (JEST)' with an All India Rank (AIR) 156 in Physics.
- Cleared the national level exam 'IIT Joint Admission for test for M.Sc (JAM)' with an All India Rank (AIR) 243 in Physics.
- **Received the 'Bank of Tokyo- Mitsubishi UFJ (Sanwa Bank)' Scholarship for academic excellence at St. Stephen's College.**

Skills

- Observing experience** ■ Experienced observer with single dish radio telescopes like the Atacama Pathfinder EXperiment (APEX) 12 m and Institut de Radioastronomie Millimétrique (IRAM) 30 m telescopes.
- Computer skills** ■ Operating systems: LINUX, macOS, Windows
 ■ Programming languages: Python
 ■ Astronomical softwares: GILDAS, CASA, DS9
 ■ Modeling tools: RADEX (non-LTE radiative transfer modeling), PDR models like PyPdr and models by Meijerink & Spaans (2005)
- Languages** ■ Hindi (mother tongue), English (fluent), German (basic)

Talks

- 2018 ■ **SOFIA tele talk:** Invited speaker at SOFIA tele talk series on June 13 (audio available at: <https://www.sofia.usra.edu/science/meetings-and-events/events/unveiling-remarkable-photodissociation-region-m8>).
- **Science with the Atacama Pathfinder Experiment (APEX), Conference at Ringberg castle, Germany:** March 11–14 (<https://events.mpifr-bonn.mpg.de/indico/event/58/timetable/>).
- 2017 ■ **National Centre for Radio Astronomy, India:** NCRA Astronomy Seminar on December 15.
- **Spectroscopy with SOFIA: new results and future opportunities, Conference at Ringberg castle, Germany:** March 5–8 (<https://events.mpifr-bonn.mpg.de/indico/event/16/timetable/>)
- 2016 ■ **Young Europeans RadioAstronomers Conference, Bonn, Germany:** September 5–9 (<https://events.mpifr-bonn.mpg.de/indico/event/13/>).

Research Publications

- **Tiwari, M., Menten, K. M., Wyrowski, F., Pérez-Beaupuits, J. P., Wiesemeyer, H., Güsten, R., Klein, B., Henkel, C. (2018).** Unveiling the remarkable photodissociation region of Messier 8. *A&A* 615,A158
- **Tiwari, M., Menten, K. M., Wyrowski, F., Pérez-Beaupuits, J. P., Lee, M. Y., Kim, W.-J. (submitted to A&A).** Observational study of small hydrocarbons in the bright photodissociation region of Messier 8.
- In prep.** ■ **Tiwari, M., Menten, K. M., Wyrowski, F. (to be submitted by June 2019).** An unbiased line survey towards the bright Messier 8 with IRAM 30 m telescope.
- **Lee, M. Y.,, Tiwari, M., et al., (to be submitted by July 2019).** Distribution of atomic carbon in high-mass star-forming regions.

Successful observing proposals

- 2018 ■ Co-I, 56 hours, Atacama Pathfinder EXperiment (APEX) (M9508_101). ‘Distribution of atomic carbon in high-mass star-forming regions’.
- 2017 ■ PI, 3.49 hours, Stratospheric Observatory for Infrared Astronomy (SOFIA) (06_0147). ‘Unveiling the remarkable photodissociation region of M8’.
- 2016 ■ PI, 20 + 8 hours, Atacama Pathfinder EXperiment (APEX) (M0002_98 & M0030_97). ‘Unveiling the remarkable photodissociation region of M8 and its link to Diffuse Interstellar Bands’.
- PI, 15.5 hours, Institut de Radioastronomie Millimétrique (IRAM) 30 m (017-16). ‘Unveiling the remarkable photodissociation region of M8 and its link to Diffuse Interstellar Bands’.

Organizational skills

- 2016-2017 ■ Coordinator of weekly student meetings, with the main colloquim speaker, Max Planck Institute for Radioastronomy, Bonn, Germany.
- 2011-2012 ■ Coordinator of orphanage & old age home visit organized by Social Service League (SSL), St. Stephen’s College, New Delhi, India.