

Dr. Prasanta Gorai

Curriculum Vitae

Department of Space, Earth, and Environment, AoP,
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Professional Experience

- 21 August 2022 - Present **Researcher-CICO**, Chalmers University of Technology, Göteborg, Sweden
- 15 July 2020- 20 August 2022 **Chalmers Initiative on Cosmic Origins (CICO) Postdoctoral fellow**, Chalmers University of Technology, Göteborg, Sweden

Education

- 4 Sept 2014- 25 June 2020 **PhD in Astrophysics**, University of Calcutta, Kolkata, India
- 10 Aug 2012- 21 June 2014 **Masters in Physics**, Narendrapur Ramakrishna Mission Residential College, University of Calcutta, Kolkata, India
- 12 June 2009- 21 June 2012 **Bachelor's in Physics**, Raghunathpur College, University of Burdwan, Raghunathpur, India
- June 2007- May 2009 **Higher Secondary (H.S)**, Parbelia Colliery High School (Board-WBCHSE), Parbelia, India
- April 2001- March 2007 **Madhyamik (M.P)**, Parbelia Colliery High School (Board-WBCHSE), Parbelia, India

Research interest

(i) star and planet formation, (ii) mm-sub/mm observations, (iii) astrochemical model, (iv) simple and complex organic molecules, (v) molecular clouds, (vi) astrochemistry, (vii) astronomy and astrophysics

Prize and Awards

- Merit cum means scholarship during 2012-2014.
- Qualified- Joint Entrance Screening Test (JEST)-2014
- Award for securing highest marks in Physics (UG Course) in all years, 2012 from Raghunathpur College.
- Award for securing highest marks in Physics (PG Course) in Semester I (2013), Semester II (2013), Semester IV (2014), from Ramakrishna Mission Residential College, Narnendrapur.
- Gold Medal for securing highest marks in Physics (PG Course) in all semesters, 2014 from Ramakrishna Mission Residential College, Narnendrapur.
- Junior research Fellowship under DST project at Indian centre for space physics from 5th September, 2014 -4th September 2016, SRF: 5th Sept 2016- 4th Sept 2017. (Grant Number. SB/S2/HEP-021/2013).
- Senior Research Fellowship under ISRO Respond project during 5th Sept 2017 to 31st May 2018. (Grant No. ISRO/RES/2/402/16-17).
- Awarded very competitive and prestigious CSIR Senior Research Fellowship, June 2018- May 2020.
- ALMA postdoctoral fellowship at NAOJ- 2020 - (could not join because of delayed in Ph.D. degree for COVID).

- The Kavli Institute for Astronomy and Astrophysics (KIAA)-Shanghai Astronomical Observatory (SHAO) joint postdoctoral fellowship for four years- 2020 - (declined).
- Postdoctoral research associate position at South-Western Institute for Astronomy Research (SWIFAR)- 2020 - (declined).

■ Funding Received So Far:

1. International Travel Support (ITS)-SERB India (DST)-2017.
2. CSIR Travel Grant -2018
3. COSPAR travel grant-2018
4. Grant from Grenoble for IRAM 30 school -2018
5. THE WILHELM AND MARTINA LUNDGRENS SCIENCE FUND FOUNDATION- 22500 SEK for use in “Chalmers Astrophysics & Space Science Summer (CASSUM) Research Progra”-2021
6. THE WILHELM AND MARTINA LUNDGRENS SCIENCE FUND FOUNDATION- 35000 SEK for use in “Chalmers Astrophysics & Space Science Summer (CASSUM) Research Program”-2022.

■ Seminar and workshop attended:

1. Attended workshop on “Introduction to Gaussian Theory and Practice”, on December 12-16, 2014 , IISER PUNE, **India**.
2. Attended New Horizon seminar on 14th July 2015, PRL, Ahemdabad. Visited Bhalamurugan Sivaraman’s FTIR laboratory, from 15th-17th July 2015, **India**.
3. Visited Prof. Elangannan Arunan’s FTMW laboratory in IISc, Bangalore from 26th November to 7th December, 2015, **India**..
4. Attended conference “Current and future perspectives of chemical modeling in Astrophysics” on July 17-19, 2017, Hamburg, **Germany**.
5. Attended conference “Astrochemistry in The THz Domain” from 30th-31st October, 2017, Chennai, **India**.
6. Attended seminar “Astrochemistry and Eoplanets” on 31st January, 2018, Ionospheric and Earthquake Research Centre & Optical Observatory (IERCOO), Pashchim Medinipur, West Bengal, **India**.
7. Attended 42nd Scientific COSPAR Assembly, 2018 held on 14-22 July, 2018, Pasadena, CA, **USA**.
8. Attended 10th IRAM Millimeter Interferometry School during 1st-5th October, 2018, at the IRAM headquarters (**Grenoble, France**).
9. Attended an international conference “Exploring the Universe: Near Earth Space Science to Extra-Galactic Astronomy” 14th - 17th November, 2018, at S N Bose National Centre for Basic Sciences, **India**.
10. Attended “International Conference on Infrared Astronomy and Astrophysical Dust” during 22nd - 25th October, 2019, at IUCAA, Pune, **India**.
11. Attended “From Stars to Galaxies II” during 20nd - 24th June, 2022, at Chalmers University of Technology, **Sweden**.

Publications in peer reviewed journals

- Jan 2017 **Prasanta Gorai**, Ankan Das, Liton Majumdar, Bhalamurugan Sivaraman, Sandip K. Chakrabarti, Eric Herbst, 2017, **Molecular Astrophysics**, **6**, **36**, The Possibility of Forming Propargyl Alcohol in the Interstellar Medium
- Feb 2017 **Prasanta Gorai**, Ankan Das, Amaresh Das, Bhalamurugan Sivaraman, Emmanuel E. Etim, Sandip K. Chakrabarti, 2017, **The Astrophysical Journal**, **836**, **70**, A Search for Interstellar Monohydric Thiols
- May 2020 **Prasanta Gorai**, Milan Sil, Ankan Das, Bhalamurugan Sivaraman, Sandip K Chakrabarti, Sergio Ioppolo, Cristina. Puzzarini, Z. Kanuchova, Anita. Dawes, M. Mendolicchio, Vincenzo Barone, N. Nakatani, T. Shimonishi, and N. J. Mason, 2020, **ACS Earth Space Chem.** **2020**, **4**, **920–946**, A systematic study on the absorption features of interstellar ices in presence of impurities
- May 2020 **Prasanta Gorai**, Bratati Bhat, Milan Sil, Suman K. Mondal, Rana Ghosh, Sandip K. Chakrabarti, and Ankan Das, 2020, **The Astrophysical Journal**, **895**, **86**, Identification of prebiotic molecules containing peptide-like bond in a hot molecular core, G10.47+0.03
- Feb 2021 **Prasanta Gorai**, Ankan Das, Takashi Shimonishi, Dipen Sahu, Suman Kumar Mondal, Bratati Bhat, and Sandip K. Chakrabarti, 2021, **The Astrophysical Journal**, **907**, **108**, Identification of methyl isocyanate and other complex organic molecules in a hot molecular core, G31.41+0.31,
- Nov 2015 Liton Majumdar, **Prasanta Gorai**, Ankan Das, Sandip K. Chakrabarti. 2015, **Astrophysics and Space Science**, **360-64**, Potential formation of three pyrimidine bases in interstellar regions
- Nov 2016 Emmanuel E. Etim, **Prasanta Gorai**, Ankan Das, Sandip K. Chakrabarti, E. Arunan, 2016, **The Astrophysical Journal**, **832**, **144**, Systematic Theoretical Study on the Interstellar Carbon Chain Molecules
- Feb 2017 Milan Sil, **Prasanta Gorai**, Ankan Das, Sandip K. Chakrabarti, 2017, **European Physical Journal D**, **71**, **45**, Adsorption energies of H and H₂: A Quantum Chemical Study
- Jan 2018 Milan Sil, **Prasanta Gorai**, Ankan Das, Bratati Bhat, E. E. Etim, Sandip, K, Chakrabarti, 2018, **The Astrophysical Journal**, **853**, **2**, Chemical Modeling for predicting the abundances of certain aldimines and amines in hot cores
- Apr 2017 Emmanuel E. Etim, **Prasanta Gorai**, Ankan Das, Elangannan Arunan, 2017, **European Physical Journal D**, **71**, **86**, C₅H₉N Isomers: Pointers to Possible Branched Chain Interstellar Molecules
- Dec 2017 Emmanuel E. Etim, **Prasanta Gorai**, Ankan Das, Elangannan Arunan, 2017, **Astrophysics and Space Science**, **363**, **6**, Theoretical investigation of interstellar C–C–O and C–O–C bonding backbone molecules
- Aug 2017 Emmanuel E. Etim, **Prasanta Gorai**, Ankan Das, Elangannan Arunan, 2018, **Advance in Space Research**, **2017**, **60**, **709-721**, Interstellar Protonated Molecular Species
- Jun 2018 Emmanuel E. Etim, **Prasanta Gorai**, Ankan Das, Elangannan Arunan, 2018, **Advances in Space Research**, **61**, **2870**, Interstellar Hydrogen Bonding
- Apr 2020 Emmanuel E. Etim, **Prasanta Gorai**, Rana Ghosh, Ankan Das, 2018, **Spectrochimica Acta Part A**, **230**, **118011**, Detectable Interstellar Anions: Examining the Key Factors
- Aug 2019 Ankan Das, **Prasanta Gorai**, Sandip K. Chakrabarti, 2019, **Astronomy and Astrophysics**, **628**, **A730**, Chemical and radiative transfer modeling of Propylene Oxide
- Jan 2022 Bratati Bhat, **Prasanta Gorai**, Suman Kumar Mondal, Sandip K. Chakarabarti, Ankan Das, 2021, **Advance in Space Research**, **69**, **415-417**, Radiative transfer modeling of the observed line profiles in G31.41+0.31

- Nov 2021 Suman K. Mondal, **Prasanta Gorai**, Milan Sil, Rana Ghosh, Emmanuel, E. Etim, et al. 2021, **The Astrophysical Journal**, **ApJ**, **922**, **194**, Is there any linkage between interstellar aldehyde and alcohol?
- Jul 2018 Ankan Das, Milan Sil, **Prasanta Gorai**, Sandip K. Chakrabarti, and J. C. Loison, 2018, **The Astrophysical Journal Supplement Series**, **237**, **9**, An approach to estimate the binding energy of interstellar species
- May 2017 P. Sundararajan, R Rajan, **Prasanta Gorai**, J -I Lod, Ankan Das, B N Raja Sekhar, T Pradeep, B-M Cheng, N J Mason, B Sivaraman, **Spectrochimica Acta Part A**, **178**, **16.**, Qualitative observation of reversible phase change in astrochemical ethanethiol ices using infrared spectroscopy?
- Sept 2022 Satyam Srivastav, Milan Sil, **Prasanta Gorai**, Amit Pathak, Bhalamurugan Sivaraman and Ankan Das, 2022, **Monthly Notices of the Royal Astronomical Society**, **515**, **3524-2538**, Study the presence of branched carbon-chain molecules in hot molecular core with realistic binding energies
- Jan 2023 Suman K. Mondal, Wasim Iqbal, **Prasanta Gorai**, Bratati Bhat, Valentine Wakelam, Ankan Das, 2023, **Astronomy and Astrophysics**, **accepted**, **A&A** **669**, **A71**, The hot molecular core, G10.47+0.03, a pit of nitrogen-containing organic molecules
- Aug 2020 Dipen Sahu, Sheng-Yuan Liu, Ankan Das, **Prasanta Gorai**, Valentine Wakelam, 2020, **The Astrophysical Journal**, **899**, **65**, Constraints of the formation and abundances of methyl carbamate, a glycine isomer, in hot corinos
- Jul 2015 Ankan Das, Liton Majumdar, Dipen Sahu, **Prasanta Gorai**, B Sivaraman, Sandip K. Chakrabarti, 2015, **The Astrophysical Journal**, **808**, **21**, Methyl Acetate and its singly deuterated isotopomers in the interstellar medium
- Jan 2020 K. K. Rahul, J. K. Meka, Pavithraa. S, **Prasanta Gorai**, et al. 2019, **Spectrochimica Acta Part A**, **224**, **117393**, Infrared attenuation due to phase change from amorphous to crystalline observed in astrochemical propargyl ether ices
- Oct 2020 Ankan Das, Milan Sil, Bratati Bhat, **Prasanta Gorai**, Sandip K. Chakrabarti, Paola Caselli, 2020, **The Astrophysical Journal**, **902**, **131**, Exploring the Possibility of Identifying Hydride and Hydroxyl Cations of Noble Gas Species in the Crab Nebula Filament
- Sept 2021 Milan Sil, Satyam Srivastav, Bratati Bhat, Suman Kumar Mondal, **Prasanta Gorai**, et al., 2021, **The Astronomical Journal**, **162**, **119**, Chemical complexity of phosphorous bearing species in various regions of the Interstellar medium
- May 2021 Ankan Das, Milan Sil, Rana Ghosh, **Prasanta Gorai**, et al., 2021, **Front. Astron. Space Sci.**, [doi.org/10.3389/fspas.2021.671622.](https://doi.org/10.3389/fspas.2021.671622), Effect of Binding Energies on the Encounter Desorption
- Jun 2022 Rana Ghosh; Milan Sil; Suman Mondal; **Prasanta Gorai**, et al., 2021, **Research in Astronomy and Astrophysics**, **22**, **065021**, Phenol in high-mass star-forming regions
- Sept 2022 Chi-Yan Law, Jonathan C. Tan,, **Prasanta Gorai**, Yichen Zhang, Rubén Fedriani, Daniel Tafoya, Kei Tanaka, Giuliana Cosentino, Yao-Lun Yang, Diego Mardones, Maria Teresa Beltrán, Guido Garay, 2022, **ApJ**, **939**, **120**, Isolated Massive Star Formation in G28.20-0.05
- Mar 2022 A. R. Costa Silva, R. Fedriani, J. C. Tan, A. Caratti o Garatti, S. Ramsay, V. Rosero, G. Cosentino, **Prasanta Gorai** S. Leurini, 2022, **Astronomy & Astrophysics**, **659**, **A23**, NIR jets from a clustered region of massive star formation Morphology and composition in the IRAS 18264 region
- Mar 2022 Giuliana Cosentino, et al., 2021, **Monthly Notices of the Royal Astronomical Society**, **511**, **953-963** , Negative and Positive Feedback from a Supernova Remnant with SHREC: A detailed Study of the Shocked Gas in IC443
- Jan 2023 Ruben Fedriani, et al., 2023, **The Astrophysical Journal**, **ApJ**, **942**, **7** , The SOFIA Massive (SOMA) Star Formation Survey. IV. Isolated Protostars

Feb 2023 **Prasanta Gorai**, Chi-Yan Law, Jonathan C. Tan et al., 2023, **The Astrophysical Journal**, will be submitted next week, Chemical diversity of an isolated massive star formation environment

Jan 2017 **Prasanta Gorai**, 2018, **Part of Astrophysics and Space Science Proceedings book series**, 467-475, Explaining Major Sources of Sulfur-Bearing Molecules in the Interstellar Medium

Invited Talk

1. Popular public lecture on Astronomy and Astrophysics at Raghunathpur College, India. 'The Mysterious Universe An introduction to the Astronomy and Astrophysics' **September, 2019**
2. **Astrophysics Colloquium at the Chalmers University of Technology Goteborg (Sweden)** 'Synthesis and Spectral Signatures of Complex Organic Molecules in the Interstellar Medium' **September 2020**
3. **Dust Ice and Gas Astrochemistry conference (India)** 'Astrochemical Modeling of Massive Protostellar Core Envelopes' **November 2022**

Contributed talk and posters in conferences and seminars

1. Contributed poster at **Current and Future Perspectives of Chemical Modelling in Astrophysics** 'Possibility of forming propargyl alcohol in the Interstellar medium, July 2017, Hamburg, Germany.
2. Contributed talk at **Astrochemistry in the Radio to THz regime**, Explaining sulfur deficit in the Interstellar Medium, October, 2017, Chennai, India.
3. Contributed talk at **COSPAR 2018**, Presence of higher order thiols in star-forming region, July, 2018, COSPAR, Pasadena, CA, USA.
4. Contributed talk at **COSPAR 2018**, Link between interstellar and cometary compositions, July, 2018, COSPAR, Pasadena, CA, USA.
5. Contributed talk at **Exploring the Universe: Near Earth space science to extragalactic astronomy" (EXPUNIV2018)**, Link between interstellar and cometary sulfur bearing species, November 2018, Kolkata India.
6. Contributed talk at **Astrochemical Frontiers Quarantine**, Explaining the observed abundance and spectral profile of propylene oxide by chemical and radiative transfer model, June 2020, Webinar.
7. Contributed talk at **CICO-VICO Fall 2020 Workshop**, Identification and synthesis of prebiotic molecules containing peptide-like bonds in the hot molecular core, G10.47+0.03, December, 2022, Göteborg, Sweden.
8. Contributed talk at **CICO-VICO Spring 2022 Workshop**, Exploring chemical complexity and diversity of massive protostars, May, 2022, Göteborg, Sweden.
9. Contributed talk at **CICO-VICO Fall 2022 Workshop**, Chemical diversity of isolated massive star formation environment, December, 2023, Göteborg, Sweden.
10. Contributed poster at **From Stars to Galaxies II (FSTGII)**, Modeling of Massive Protostellar Core Envelopes, June, 2022, Göteborg, Sweden.

Organization and Membership

- LOC member of the international conference **From Stars to Galaxies II (FSTGII)**, June 2022

- Junior Member of International Astronomical Union (IAU) from **Oct 2021- Present**
- Member of **Chalmers Astrophysics & Space Science Summer (CASSUM) research program**

Supervising and mentoring activities:

- **Feb 2021- May 2021**
Supervisor of the final bachelor thesis of 12 undergraduates separated in 4 groups of 3 students. Massive Star Fireworks. Students: Group 1: Nora Malmquist, Victor Gustafsson, Max Tapia molander; Group 2: Ludvig Askbom, Axel Lind, Emma Ulberstad; Group 3: Alva Kinman, Carl Larsson, Oskar Olander; Group 4: Mattias Wiklund Karin Hult, Johanna Brinkmalm (Chalmers University of Technology).
- **Feb 2022- May 2022**
Supervisor of the final bachelor thesis of 5 undergraduates (*Anna Nguyen, Johan Nilsson, Johan Rumar Karlquist, Martin Almquist, Greta Gascon Rudin*) in Massive Star Fireworks. (Chalmers University of Technology).
- **June 2021-July 2021**
Main supervisor of a Chalmers Astrophysics & Space Science Summer (CASSUM) Research Fellowship project: Exploring chemical diversity and kinematics of massive protostars; Student: Maicen Stuart (University of Wisconsin – Madison)
- **May 2022-July 2022**
Lauren Light (Smith College, USA) - CASSUM - Shining a light on the kinematics and chemical complexity of massive protostars - Supervisor: Prasanta Gorai (Chalmers); Co-supervisor: Jonathan Tan (Chalmers/UVA)

Accepted proposals as PI for observations in various radio telescopes:

- **APEX 12m-0107.F-9321** High frequency astrochemical survey of an isolated massive protostar
- **Yebes 40m -21A004-** A high-sensitivity line survey towards the massive protostar G28.20-0.05
- **IRAM 30m-040-21-** Exploring chemical diversity in massive star-forming regions
- **APEX 12m-0108.F-9318-** High frequency astrochemical survey toward massive protostars
- **GBT22A-398-** Exploring Carbon Chain Chemistry of Massive Protostars
- **ALMA-2022.1.00382.S-** The Chemical Fingerprints of Massive Star Formation
- **IRAM 30m-122-22-** Exploring chemical diversity of intermediate mass protostars: bridging the gap from low to high-mass protostars
- **SMA-2022A-S006** A Spectral Line Survey of Clustered Massive Protostars to Probe the Astrochemical Evolutionary Sequence
- **Yebes 40m -23A017-75 hrs** A high-sensitivity Q Band line survey toward massive protostars

Accepted proposals as Co-PI for observations in various telescopes:

- **2022A-S006** A Spectral Line Survey of Clustered Massive Protostars to Probe the Astrochemical Evolutionary Sequence
- **APEX 12m-** Detection of high transition $N_2H^+(7-6)$ and $C^{18}O(6-5)$ in Infrared dark cloud G28.37+0.07
- **APEX 12m-** The Currents of Space: IRDC formation from shock compression
- **APEX 12m-** Interstellar Plunging Waves: The inception of star formation
- **Yebes 40m- 21A008-** Star Formation: The role of supernova remnants and their interactions with molecular clouds
- **SOFIA Cycle 9-** Large Scale Shock Interactions in Infrared Dark Clouds: tale of a forming cloud
- **SOFIA Cycle 9-** Giant growing under still water: Polarized emissions from isolated massive protostar G28.20-0.05
- **SOFIA Cycle 9-** The Infrared Dark Cloud G034.77-00.55: Magnetic field in large scale shock interactions
- **IRAM 30m-027-21-** Do large-scale shock interactions set the initial conditions for star formation?

- **IRAM 30m-004-21-** Cloud-Cloud Collisions in Infrared Dark Clouds: Dynamical Flows at the Onset of Star Birth
- **IRAM 30m- 017-21-** Mapping the large scale magneto-kinematics and outflow feedback around the isolated massive protostar G28.2-0.05
- **NOEMA-S21AF-** Pre-stellar chemistry and dynamics in a massive infrared dark cloud
- **ALMA-2021.1.01309.S-** Into the (infrared-)darkness: the chemistry, kinematics and structure of massive core candidate
- **ALMA-2021.2.00177.S-** 'Shaping' the outflows of massive protostars
- **HST-17188** Cosmic Beacons Towards a Theory of Massive Star Formation - A NIR View of the Most Luminous Protostars
- **Yebes 40m- 22A008-** A Carbon-Chain Survey toward Intermediate-Mass Young Stellar Objects
- **Yebes 40m- 22B005-** Carbon-Chain Survey toward Seven Intermediate-Mass Young Stellar Objects
- **Yebes 40m- 23A014-** W-band Line Survey toward the Intermediate-Mass Protostar L1206

Conference proceedings:

1. **Possibility of detecting some interstellar anions in the ISM**, R Ghosh, A Das, E Etim, **Prasanta Gorai** 43rd COSPAR Scientific Assembly. Held 28 January-4 February 43, 1923, 2021.
2. **Peptide-like bond containing molecules in a hot molecular core, G10. 47+ 0.03, and their chemical origin** A Das, S. K. Chakrabarti, M Sil, **Prasanta Gorai**, B Bhat, R Ghosh, SK Mondal 43rd COSPAR Scientific Assembly. Held 28 January-4 February 43, 1917, 2021
3. **Radiative transfer modeling to explain the observed Inverse P-Cygni profile in a high mass star-forming region** B Bhat, S. K. Chakrabarti, A Das, **Prasanta Gorai** 43rd COSPAR Scientific Assembly. Held 28 January-4 February 43, 1921, 2021
4. **Fate of identifying noble gas related species in the Crab nebula environment** M Sil, S. K. Chakrabarti, A Das, **Prasanta Gorai**, B Bhat, P Caselli 43rd COSPAR Scientific Assembly. Held 28 January-4 February 43, 1920, 2021
5. **glycine isomer, methyl carbamate towards hot corino objects?** D Sahu, A Das, V Wakelam, **Prasanta Gorai**, SY Liu 43rd COSPAR Scientific Assembly. Held 28 January-4 February 43, 1909, 2021
6. **A combined observational and theoretical study to understand the evolution of nitrogen-bearing species in high-mass star-forming regions** SK Mondal, S. K. Chakrabarti, A Das, **Prasanta Gorai** 43rd COSPAR Scientific Assembly. Held 28 January-4 February 43, 1924, 2021
7. **Presence of Higher Order Thiols in Star-Forming Region** **Prasanta Gorai**, A Das, B Sivaraman, E Etim, S. K. Chakrabarti 42nd COSPAR Scientific Assembly 42, F3. 5-16-18, 2018
8. **Deuteration of the Interstellar medium** A Das, **Prasanta Gorai** D Sahu, S. K. Chakrabarti 42nd COSPAR Scientific Assembly 42, F3. 5-14-18, 2018
9. **Radiative transfer modeling of some potentially observable Interstellar species** B Bhat, M Sil, **Prasanta Gorai**, A Das, S. K. Chakrabarti 42nd COSPAR Scientific Assembly 42, F3. 5-19-18, 2018
10. **Studies on Known and Potential Interstellar Carbon Chain Molecular Species** E Etim, SK Chakrabarti, A Das, **Prasanta Gorai**, E Arunan 42nd COSPAR Scientific Assembly 42, F3. 5-26-18, 2018
11. **Binding energy a key to defining interstellar volatile species** M Sil, **Prasanta Gorai**, A Das, D Sahu, SK Chakrabarti 42nd COSPAR Scientific Assembly 42, B1. 3-17-18, 2018

12. **C₅H₉N isomers: Signalling potential branched chain interstellar molecular species** E Etim, A Das, [Prasanta Gorai](#), E Arunan 42nd COSPAR Scientific Assembly 42, B0. 1-9-18, 2018
13. **Link Between Interstellar and Cometary Compositions** [Prasanta Gorai](#), A Das, SK Chakrabarti 42nd COSPAR Scientific Assembly 42, B1. 3-18-18, 2018
14. **A Systematic Study of Pre-biotic Aldimines and Amines in Hot Cores** M Sil, [Prasanta Gorai](#), A Das, B Bhat, E Etim, SK Chakrabarti 42nd COSPAR Scientific Assembly 42, F3. 5-17-18, 2018
15. **Studies on Known and Potential Interstellar Carbon Chain Molecular Species** E Etim, SK Chakrabarti, A Das, [Prasanta Gorai](#), E Arunan 42nd COSPAR Scientific Assembly 42, F3. 5-26-18, 2018
16. **Search for Propargyl Alcohol in the Interstellar Medium** [Prasanta Gorai](#), A Das, L Majumdar, SK Chakrabarti, B Sivaraman, E Herbst 42nd COSPAR Scientific Assembly 42, F3. 2-38-18, 2018
17. **A Theoretical Prediction of Interstellar Bio-Molecule abundances** M Sil, [Prasanta Gorai](#), A Das, B Bhat, SK Chakrabarti 42nd COSPAR Scientific Assembly 42, B0. 1-10-18, 2018
18. **Interstellar Aldehydes and their corresponding Reduced Alcohols: Interstellar Propanol?** E Etim, [Prasanta Gorai](#), A Das, SK Chakrabarti, E Arunan 41st COSPAR Scientific Assembly 41, F3. 1-28-16, 2016
19. **Search for the isomers of C₂H₃NO and C₂H₃NS in the Interstellar Medium** E Etim, [Prasanta Gorai](#), A Das, SK Chakrabarti, E Arunan 41st COSPAR Scientific Assembly 41, F3. 1-23-16, 2016
20. **Interstellar Carbon Chains: Is Thermodynamics the Key?** E Etim, [Prasanta Gorai](#), A Das, SK Chakrabarti, E Arunan 41st COSPAR Scientific Assembly 41, F3. 1-22-16, 2016
21. **Only Amorphous Ethanethiol Exists in the Interstellar Medium** P. Sundararajan, [Prasanta Gorai](#), A Das, R Rajan, T Pradeep, BM Cheng, ... 41st COSPAR Scientific Assembly 41, F3. 1-11-16, 2016
22. **Computation of Adsorption Energies of Some Interstellar Species** M Sil, [Prasanta Gorai](#), A Das, E Etim, SK Chakrabarti, E Arunan 41st COSPAR Scientific Assembly 41, F3. 1-26-16, 2016.
23. **Search for Deuterated methyl acetate in the ISM** [Prasanta Gorai](#), A Das, L Majumdar, D Sahu, B Sivaraman, SK Chakrabarti 41st COSPAR Scientific Assembly 41, F3. 1-14-16, 2016

Project work (during M.Sc): Title: Correlate Ionization Degree of Interstellar Medium with Deuterium Enrichment of Interstellar Ions (supervisor- Dr. Ankan Das).

Computer Skill:

Linux, Mac, Windows

Language known- Python, Fortran

Plotting tools: Python, Gnuplot, Xmgrace, Origin

Software known- CASA, CASSIS, GILDAS, Radex, GAUSSIAN 09, ASCP PROGRAM, SED-Creator