Kinsuk Acharyya – Curriculum vitae

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Address (Office)	Navrangpura, Ahmedabad 380009, India	**Email (office)**	acharyya@prl.res.in
Date of Birth	31^{st} December 1975	**Email (personal)**	kinsukacharyya@gmail.com
Nationality	Indian		

Personal Profile

I'm an Astrochemist. Using numerical calculations and laboratory experiments, I try to understand how molecules are formed in the astrophysical conditions such as star forming regions, early Universe, exoplanets, comets.

Education

2008	Ph.D. in Physical Science - University of Calcutta, Kolkata, India
	Thesis title "Formation of Complex Molecules During Star Formation"
1997-1999	M.Sc. in Physics - University of Calcutta, Kolkata, India, First Class
1994-1997	B.Sc. in Physics - University of Calcutta, Kolkata, India, First Class

Employment History

- **Associate Professor**, Jan 2021 - Present, Physical Research Laboratory (PRL), Ahmedabad, India
- **Reader**, Dec 2015 - Dec 2020, Physical Research Laboratory, Ahmedabad, India
- **Research scientist**, March 2014 - Dec 2015, University of Virginia, USA
- **Bose fellow** May 2008 - Feb 2014, S. N. Bose National Centre for Basic Sciences (SNBNCBS), fellowship equivalent to a faculty of the Centre in the rank of Reader
- **Post Doctoral Fellow**, March 2007 - April 2008, SNBNCBS, West Bengal, India

Guiding PhD students, PDFs, summer trainees, short-term projects

1. **Current Ph.D. students**

   Ms. Sana Ahmed - Topic - Understanding Cometary Atmospheres

   Mr. Vikas Soni - Topic - Study of atmosphere of Exoplanets

2. **Post Doctoral Fellow**

   Mr. Shashank Gurumath (2018 - 2019)- Worked on Exoplanets

3. **PRL JRF project students (Project duration one semester)**

   (a) **2020 :** Mr. Arup Kumar Maity, Mr. Sanjay Baliwal

   (b) **2020 :** Mr. Vineet Rawat

   (c) **2019 :** Mr. Yogesh Kumar Maurya, Mr. Vikas Soni, Mr. Naval Kishor Bhadari, Ms. Meghna Soni, and Ms. Sana Ahmed

(d) **2018 :** Ms. Sana Ahmed, Ms. Anshika Bansal, and Ms. Rituparna Das

(e) **2016 :** Mr. Naveen

4. **Summer interns (Project duration - two months)**

   (a) **2020 :** Ms. Amrita Singh, Ms. Mrittika Ghosh, Mr. Sathiya S. V., and Mr. Viswakannan R. K.

   (b) **2011 :** Ms. Moumita Adhikari

5. **B.Tech project students (Project duration - Four months)**

   (a) **Ms. Aitreyi Patel**, title - "Detection and Measurement of Gaseous Matter in Atmosphere causing air Pollution" (2019)

   (b) **Ms. Rojal Bhandari**, title - "Detection and Measurement of Particulate Matter in Atmosphere Causing Air Pollution" (2019)

   (c) **Mr. Kalpan S. Mehta**, title - "Tunable Diode Laser Spectrometer for in-situ Study of Atmosphere" (2018)

   (d) **Ms. Devanshi Adhvaryu**, title - "Polarization Nephelometer for Planetary missions" (2018)

   (e) **Ms. Pooja Kumari**, title - "Radiometer" (2018)

   (f) **Mr. Vaibhav Gupta**, title - "Venus Atmosphere Exploration" (2017)

   (g) **Mr. Aditya Shukla**, title - "Design of Superpressure Balloon to Analyze Venus Atmosphere" (2017)

Teaching

- Taught (2019) "Atmospheres & Environments of Planetary Objects", Physical research Laboratory (PRL).
- Taught (2017) "Fortran 90 and Numerical methods in Physics", PRL.
- Taught (2016) "Programming and Numerical Methods" to First year PhD students at PRL.
- Taught " Seminar Course (PHY 402) " to PBSc-Int-PhD students (Fourth Semester).
- Taught (2012) "Fortran 90 and Numerical methods in Physics", SNBNCBS.
- Taught (2012) " Seminar Course (PHY 402) " to PBSc-Int-PhD students (Fourth Semester).
- Taught (2011) "Fortran 90 and Numerical methods in Physics", 1st year PhD, SNBNCBS
- Taught (2011) " Seminar Course (PHY 402) " to PBSc-Int-PhD students (Fourth Semester).
- Taught (2010) "Fortran 90 and Numerical methods in Physics", 1st year PhD student, SNBNCBS
- Taught (2010)"Interstellar medium, star formation and stellar evolution" (Astrophysics 510), SNBNCBS.
- Taught 'Computational Methods in Physics' to PBSc-Int-PhD students (PHY-105, 1st Sem, 2008), SNBNCBS

Past and Present International Collaborations

1. Collaboration with Prof. Eric Herbst, University of Virginia to study molecular complexity in astrophysical environments (ongoing).
2. Collaboration with Dr. Naseem Rangwala, NASA Ames Research Centre, for the study of Orion IRc2 region with Stratospheric Observatory for Infrared Astronomy (ongoing).
3. Collaboration with Prof. Gianfranco Vidali's group, University of Syracuse for the study of astrophysical implications of the laboratory measurements.

Training/Workshop attended

1. Participated ISRO Structured Training Programme during 4 - 8 February, 2019 at PRL, Ahmedabad.
2. Attended NASA Astrobiology Institute Workshop, Carnegie Institution, Washington DC, March 2010 and gave lecture on "Effect of Grain sizes and Grain Growth on the chemical evolution of dense cloud".
3. Summer school on "Molecular Astrophysics" in Les Houches (France, September 26th-30th, 2005).

4. Summer project on “Wind Induced Instability of Accretion Flows” at S.N. Bose National Centre for Basic Sciences, Kolkata, 2003.
5. Attended workshop on “Techniques of Satellite Data Analysis” held at Centre for Space Physics, Kolkata, Dec. 2001.

Prizes, Awards, Fellowships of Scientific Bodies

1. Awarded J. Mayo Greenberg Scholarship Prize (2003) to work at Leiden Observatory
2. National Eligibility Test [NET] Scholar: An award based on country-wide Master of Science standard test (2001)
3. Research Fellowship in the ISRO sponsored project on Synthesis of Bio-molecules during Star Formation and Their Detection in millimeter and microwaves (2001)
4. National Scholarship (NS) based on State-Wide Result in Bachelor of Science Examinations

Invited talks in International and National Conference

1. Invited talk on “Molecular Complexity at low metallicity” in “Exploring the Universe: Near Earth Space Science to Extra-Galactic Astronomy”, 14 - 17 November, 2018, SNBNCBS, Kolkata, India
2. Invited talk on “Fluorine and Chlorine Chemistry in the Interstellar Medium” in 42th COSPAR Scientific Assembly, 14 - 22 July 2018, Pasadena, USA.
3. Invited talk on “H_2 formation at High Temperature” in 40th COSPAR Scientific Assembly, 2-10 August 2014, Moscow, Russia.
4. Invited lecture on “Interstellar Dusts and their Laboratory analog” in workshop on “Chemical Evolution and Origin of Life”, IIT Roorkee, 21-23 March, 2013
5. Invited lecture on “Interstellar Dusts and their Laboratory Analog” at AOGS 2010, Hyderabad, India, 5 - 9 July, 2010
6. Invited Lecture on “Dusts: Their role in chemical evolution of the interstellar medium” in a workshop on “Light Scattering Methods In Dust Modeling”, 28th - 29th November, 2007, SNBNCBS. Kolkata, India

Chairing Sessions

1. Chaired poster sessions in online conference Venus-SC-2021, PRL, Ahmedabad, India, 2021
2. Chaired a session (The Evolving Chemical Universe: from proto-stars to the origin of life (F3.2)) in 42th COSPAR Scientific Assembly, 14 - 22 July 2018, Pasadena, USA.
3. Chaired a session (It is a Dusty Universe: the Many Roles of Dust in the Chemistry and Physics in Diverse Environments in Space (F3.2)) in 42th COSPAR Scientific Assembly, 2 - 10 August 2014, Moscow, Russia.

Organization of conferences/Summer Schools, etc.

1. In the local organizing comittee of , “Indian Planetary Science Conference (IPSC-2020)”, held at PRL, 19 - 21, February, 2020.
2. **Co-convener** of International Conference on “Chemical Evolution of Star Forming Region and Origin of Life”, 2012, SNBNCBS, Kolkata
3. In the organizing committee of “Observational Evidence for Black Holes in The Universe”, 10th - 15th February, 2008, Organized by S. N. Bose national Centre for Basic Sciences
4. In the organizing committee of the Conference titled “Light Scattering Techniques and Application to Astronomy and Other Areas”, from Nov 19 - 21, 2013 Organized by S. N. Bose national Centre for Basic Sciences

Publication in Journal

More comprehensive list along with the publications in Proceedings/ADS can be found: Link
(In case link does not work, list can be searched in `https://ui.adsabs.harvard.edu/search/`)

1. **Acharyya, K.**,"Understanding the impact of diffusion of CO in the astrochemical models", 2022, PASA, 39, 9
2. Pabari, J. P., Nambiar, S., Singh, R. K., Bhardwaj, A., Lad, K. A., **Acharyya, K.** et. al. "IDP detection in Earth environment: Prediction of plasma capture efficiency and detector response to high-energy particles" 2022, PSS, 215, 105452
3. Ahmed, Sana and **Acharyya, Kinsuk**, 'Gas phase modeling of the cometary coma of interstellar comet 2I/Borisov', 2021, 923, 91 ApJ
4. Kumar, V. R. Dinesh, Pabari, J. P., **Acharyya, K.**, and Russell, C. T., 'Venus lightning: Estimation of charge and dimensions of charge regions for lightning initiation', 2021, Icarus, 365, 114473
5. Nickerson, Sarah, Rangwala, Naseem; Colgan, Sean; DeWitt, Curtis; Huang, Xinchuan; **Acharyya, Kinsuk**, et al., 'The First Mid-Infrared Detection of HNC in the Interstellar Medium: Probing the Extreme Environment Towards the Orion Hot Core', 2021, ApJ, 907, 51
6. **Kinsuk Acharyya**, Sean W. Schulte, and E. Herbst, "The Effect of Chemisorption on the Chemical Evolution of Star-forming Regions", 2020, 247, 4
7. **Kinsuk Acharyya** and E. Herbst, "Hot Cores in Magellanic Clouds", 2018, ApJ, 851, 59
8. Naseem Rangwala, Sean Colgan, Romane Le Gal, **K. Acharyya**, Xinchuan Huang, Timothy J. Lee, Eric Herbst, Curtis deWitt, Matt Richter, Adwin Boogert, and Mark McKelvey, 2017, "High Spectral Resolution Observations of C_2H_2 Towards Orion-IRC2 from SOFIA/EXES", 2018, ApJ, 856, 9
9. **K. Acharyya** and E. Herbst, 2017, "Gas-Grain Fluorine and Chlorine Chemistry in the Interstellar Medium", 2017, ApJ, 850, 105
10. Jiao, He., **K. Acharyya**, and Vidali, G., 2016, "Binding Energy of Molecules on Water Ice: Laboratory Measurements and Modeling", ApJ, 825, 89
11. Jiao, He., **K. Acharyya**, and Vidali, G., 2016, "Sticking of molecules on non-porous amorphous water ice", ApJ, 823, 56
12. **K. Acharyya**, E. Herbst, 2016,"Simulations of the Chemistry in the Small Magellanic Cloud", ApJ, 822, 105
13. **K. Acharyya** and E. Herbst, 2015, "Molecular Development in the Large Magellanic Cloud", ApJ, 812, 142
14. **K. Acharyya**, E. Herbst, R. L. Caravan, R. J. Shannon, M. A. Blitz & D. E. Heard, 2015, " The importance of OH radical–neutral low temperature tunnelling reactions in interstellar clouds using a new model", Molecular Physics, 113, 2243
15. **K. Acharyya**, 2014, "Laboratory study of sticking and desorption of H_2 and its significance in the chemical evolution of dense interstellar medium", MNRAS, 443, 1301
16. W. Iqbal, **K Acharyya**, and E. Herbst, 2014, "H_2 Formation In Diffuse Clouds: A New Kinetic Monte Carlo Study", ApJ, 784, 139
17. Umut A. Yıldız, **Kinsuk Acharyya**, Paul F. Goldsmith, Ewine F. van Dishoeck, Gary Melnick, and et al., 2013, "Deep observations of O_2 toward a low-mass protostar with Herschel-HIFI", Astronomy & Astrophysics, 558, 58
18. W. Iqbal, **K. Acharyya**, and E. Herbst, 2012, "Kinetic Monte Carlo Studies of H_2 Formation on Grains Surfaces over a Wide Temperature Range", ApJ, 751, 58
19. **K. Acharyya**, G. Hassel, and E. Herbst, 2011, "Effect of grain sizes and grain growth on the chemical evolution of dense cloud", ApJ, 732, 72
20. A. Das, **K. Acharyya**, and S. K. Chakrabarti, 2010, "Effects of initial condition and cloud density on the composition of the grain mantle", MNRAS, 409, 789
21. A. Das, **K. Acharyya**, and S. K. Chakrabarti, 2008, "Formation of Water and Methanol in Star Forming Molecular Clouds", Astronomy & Astrophysics, 486, 209

22. A. Das, S. K. Chakrabarti, **K. Acharyya** and S. Chakrabarti, 2008, "Time evolution of simple bio-molecules during proto-star collapse", New Astronomy, 13, 457
23. **K. Acharyya**, G.W. Fuchs, H.J. Fraser, E.F. van Dishoeck and H. Linnartz, 2007, "Desorption rates and sticking co-efficients for CO and O_2 interstellar ices", Astronomy & Astrophysics, 466, 1005
24. S. K. Chakrabarti, A. Das, **K. Acharyya** and S. Chakrabarti, 2006, "Recombination efficiency of molecular hydrogen on interstellar grains-II". A numerical study, Bulletin of the astronomical society of India, 34, 299
25. S. K. Chakrabarti, A. Das, **K. Acharyya** and S. Chakrabarti, 2006, "Effective grain surface area in the formation of molecular hydrogen in interstellar clouds", Astronomy & Astrophysics, 457, 167
26. **K. Acharyya**, S. K. Chakrabarti, S. Chakrabarti, 2005, "Recombination efficiency of molecular hydrogen on interstellar grains and its effect on production of H_2", Bulletin of the astronomical society of India, 33, 473
27. **K. Acharyya**, S. K. Chakrabarti and S. Chakrabarti, 2005, "Molecular Hydrogen Formation During Interstellar Cloud Collapse", M.N.R.A.S., 361, 550
28. S. K. Chakrabarti, M Saha, R. Khan, S. Mandal, **K. Acharyya**, R Saha, 2005, "Possible detection of ionospheric disturbance during Sumatra-Andaman islands earthquakes of December", 2004, Indian Journal of Radio & Space Physics, 34, 314
29. S. K. Chakrabarti, **K. Acharya**, D. Molteni, 2004, "The Effect of Cooling on Time Dependent Behaviour of Accretion Flows Around Black Holes", Astronomy and Astrophysics, 421, 1
30. **K. Acharyya**, S. Chakrabarti and S. K. Chakrabarti,2003, "Formation of Simple Bio-Molecules During Collapse of a Interstellar Cloud - A Preliminary Analysis", Ind. J. Phys. 78B(1), 7-11 (2004)
31. **K. Acharya**, S. K. Chakrabarti and D. Molteni, 2002, "Interaction of Accretion Shocks with Winds, in Jour. Astrophys. Astron." V. 23, p. 155, 2002
32. D. Molteni, **K. Acharya**, S. K. Chakrabarti, "Hydrodynamic Interaction Between an Accretion Disk and Strong Wind Around a Black Hole", 2002, Ind. J. Phys, 76B, 7
33. S. K. Chakrabarti, **K. Acharya**, B. Bose, S. Mandal, A. Chatterjee, N. M. NANDI, S. PAL, R. KHAN, 2002, "Monitoring of Sudden Ionospheric Disturbances (SID) from Kolkata", Ind. J. Phys.
34. S. K. Chakrabarti, S. PAL, **K. Acharya**, S. Mandal, S. Chakrabarti, R. Khan, B. BOSE, 2002, "VLF observation during Leonid Meteor Shower-2002 from Kolkata", Ind. J. Phys. v. 76B, 693
35. D. Molteni, D., F. Fauci, G. Gerardi, D. Bisikalo, O. Kuznetsov, **K. Acharya**, S. K. Chakrabarti, 2001, "New Instabilities in Accretion Flows onto Black Holes", J. Korean Astron. Society, 34, 247
36. D. Molteni, **K. Acharya**, O. Kuznetsov, D. Bisikalo, S. K. Chakrabarti, "Kelvin-Helmholtz Instability on the Accretion Disk Surface", 2001, ApJL, v 563, p L57

Publication in Proceedings/ADS:

1. **Acharyya, Kinsuk** and Herbst, Eric, "Chemisorption: A new route for the formation of molecules in the astronomical environment", 43rd COSPAR Scientific Assembly. Held 28 January - 4 February, 2021. Abstract F3.5-0035-21, id.1990 (Bibcode: 2021cosp...43E1990A)
2. **Acharyya, Kinsuk** "Formation of Water in the star-forming regions of low metallicity galaxies", 43rd COSPAR Scientific Assembly. Held 28 January - 4 February, 2021. Abstract F3.1-0015-21, id.1918 (Bibcode: 2021cosp...43E1918A).
3. Jitarwal, S., Pabari, J. P., Dinesh Kumar, V. R., Nambiar, S., Rashmi, S., Upadhyaya, T., **Acharyya, K.**, and Sheel, V.,"Sensitivity Analysis and Testing of Electrically Short Dipole Antenna for Lightning Instrument for Venus (LIVE)", 19th Meeting of the Venus Exploration Analysis Group (VEXAG), held virtually, 8-9 November, 2021. LPI Contribution No. 2628, id.8042 (Bibcode: 2021LPICo2628.8042J).
4. Jitarwal, S., Upadhyaya, T., Pabari, J. P., Nambiar, S., Kumar, D., Rashmi, S. **Acharyya, K.**,"Non-Foster Active Impedance Matching of Short Dipole Antenna for a Lightning Instrument", 52nd Lunar and Planetary Science Conference, held virtually, 15-19 March, 2021. LPI Contribution No. 2548, id.2162, (Bibcode: 2021LPI....52.2162J).

5. Nambiar, S., Pabari, J. P., Rashmi, Jitarwal, S., **Acharyya, K.**, Praneeth, S. M. K., Singh, R., Kumar, D., "Comparative Analysis of Two and Three Channel Hypervelocity Dust Detectors", 52nd Lunar and Planetary Science Conference, held virtually, 15-19 March, 2021. LPI Contribution No. 2548, id.1904, (Bibcode: 2021LPI....52.1904N)

6. Kumar, V. R. D., Pabari, J. P., **Acharyya, K.**, Jitarwal, S., Nambiar, S., Rashmi, and Upadhyaya, T., "Constraint on Discharge Current Parameters and Streamer Speeds of Venusian Lightning", 52nd Lunar and Planetary Science Conference, held virtually, 15-19 March, 2021. LPI Contribution No. 2548, id.1768, (Bibcode: 2021LPI....52.1768K)

7. Pabari, J. P., Singh, R., **Acharyya, K.**, Nambiar, S., Jitarwal, S., Sheel, V., Bhardwaj, A., Kumar, D.,"Detachment of Interplanetary Dust Particles from Asteroid Belt", 52nd Lunar and Planetary Science Conference, held virtually, 15-19 March, 2021. LPI Contribution No. 2548, id.1430, (Bibcode: 2021LPI....52.1430P)

8. Kumar, V. R. D., Pabari, J. P., and **Acharyya, K.**,"Is GCR Induced Ionization the Prime Driving Force for Venus Lightning?", 18th Meeting of the Venus Exploration Analysis Group (VEXAG), held virtually, 16-18 November 16-18, 2020. LPI Contribution No. 2356, id.8004 (Bibcode: 2020LPICo2356.8004K)

9. **Acharyya, Kinsuk** and Herbst, Eric,"Fluorine and Chlorine Chemistry in the Interstellar Medium" 42nd COSPAR Scientific Assembly. Held 14-22 July 2018, in Pasadena, California, USA, Abstract id. F3.5-7-18, (Bibcode: 2018cosp...42E..19A).

10. **Acharyya, Kinsuk** and Herbst, Eric,"Molecular Complexity in the star forming regions of Magellanic Clouds", 42nd COSPAR Scientific Assembly. Held 14-22 July 2018, in Pasadena, California, USA, Abstract id. F3.2-22-18, (Bibcode: 2018cosp...42E..18A).

11. J. P. Pabari, **K. Acharyya**, S. A. Haider, et al., "Lightning Instrument for Future Venus Orbiter", 49th Lunar and Planetary Science Conference 19-23 March, 2018, held at The Woodlands, Texas LPI Contribution No. 2083, id.1391 (Bibcode: 2018LPI....49.1391P).

12. **K. Acharyya**, and E. Herbst, 2016, "Molecular Complexity in the Magellanic Clouds", 41st COSPAR Scientific Assembly, abstracts from the meeting that was to be held 30 July - 7 August at the Istanbul Congress Center (ICC), Turkey, but was cancelled. Abstract id. F3.1-25-16 (Bibcode - 2016cosp...41E..29A).

13. **K. Acharyya**, and E. Herbst, 2016, "Formation of Complex Molecules via radiative association reactions", 41st COSPAR Scientific Assembly, abstracts from the meeting that was to be held 30 July - 7 August at the Istanbul Congress Center (ICC), Turkey, but was cancelled. Abstract id. F3.1-3-16., (Bibcode - 2016cosp...41E..28A)

14. **Acharyya, K.** and Herbst, E., 2016, "Molecular Complexity in the Magellanic Clouds", Bibcode - 2016cosp...41E..29A

15. **Acharyya, K.** and Herbst, E., 2016, " Formation of Complex Molecules via radiative association reactions", Bibcode - 2016cosp...41E..28A

16. He, Jiao, **Acharyya, K.**, Emtiaz, S. M., Vidali, Gianfranco, "New measurements of the sticking coefficient and binding energy of molecules on non-porous amorphous solid water in the submonolayer regime", 2016, American Astronomical Society, AAS Meeting 228, id.111.03 (Bibliographic Code - 2016AAS...22811103H)

17. Yildiz, U., **Acharyya, K.**, Goldsmith, P., van Dishoeck, E., and HOP (Herschel Oxygen Project) Team, 2014, "Stringent Limits of O2 Abundance Toward a Low-mass Protostar with Herschel-HIFI" In American Astronomical Society Meeting 223, Bibliographic Code:2014AAS22324418Y

18. Iqbal, W., **Acharyya, K.**, and Herbst, E., 2014, "H2 formation in the diffuse interstellar medium", in 40th COSPAR Scientific Assembly, Bibliographic Code:2014cosp40E1285I

19. **Acharyya, K.**, Herbst, E. and, Iqbal, W., 2014, "H2 Formation on Grains at High Temperature", in 40th COSPAR Scientific Assembly, Bibliographic Code:2014cosp...40E..23A

20. Yildiz, U., **Acharyya, K.**, Goldsmith, P., van Dishoeck, E. and Melnick, G., 2013, "Deep O2 observations toward a low-mass protostar with Herschel-HIFI" in Protostars and Planets VI, Bibliographic Code:2013prpl.conf1B065Y

21. **Kinsuk Acharyya**, 2012, "Effect of size distribution and Grain Growth on the Formation of Molecules in Star Forming Regions" in the proceedings of International Conference on "Chemical Evolution of Star Forming Regions and Origin of Life", Published by AIP, Volume 1543

22. **Kinsuk Acharyya**, 2012, "Thermal Desorption Study of Air on Laboratory Analog of Interstellar Dusts" in the proceedings of International Conference on "Chemical Evolution of Star Forming Regions and Origin of Life" published by AIP, Volume 1543

23. W. Iqbal, and **K. Acharyya** ,2012, "Study of H_2 formation on the interstellar dust grains using CTRW Monte Carlo Simulation", 39th COSPAR Scientific Assembly, 39, 796

24. **K. Acharyya**, 2012, "Effect of grain sizes and grain growth on the formation of Molecules in Interstellar Medium", 39th COSPAR Scientific Assembly, 39, 11

25. **K. Acharyya** and E. Herbst, 2011, "The Effects of Grain Size and Grain Growth on the Chemical Evolution of Cold Dense Clouds", 280th Symposium of the International Astronomical Union, 280, 75

26. H. Linnartz, **K. Acharyya**, Awad, Z. et al., 2007, "Solid state astrophysics and -chemistry four questions-four answers", In the proceedings of "Molecules in Space and Laboratory", 2007, 42

27. A. Das, S. K. Chakrabarti, **K. Acharyya** and S. Chakrabarti, 2006, "Average recombination time of atomic hydrogen on grain surfaces: A Monte Carlo study", in the 36th COSPAR Scientific Assembly, 36, 623

28. E.F. van Dishoeck, **K. Acharyya**, A. Al-Halabi et al., 2006, "Spectroscopy and Processing of Interstellar Ice Analogs", 2006, AIPC, 855, 113V

29. G.W. Fuchs, **K. Acharyya**, S.E. Bisschop, K.I. Oeberg, F. van Broekhuizen, H.J. Fraser, S. Schlemmer, E.F. van Dishoeck, H. Linnartz, 2006, "Comparative studies of O2 and N2 in pure, mixed and layered CO ices", Faraday Discussions 133: Chemical evolution of Universe, 133, 331

30. A. Das, S. K. Chakrabarti, S. Chakrabarti and **K. Acharyya**, 2005, "Monte-Carlo simulation of Molecular Hydrogen Formation on Grain Surfaces", Bulletin of Astronomical Society of India, 33, 390

31. S. K. Chakrabarti, **K. Acharya**, D. Molteni, 2004, "QPOs from radial and vertical oscillation of shocks in advective accretion flows", in the proceedings of Tenth Marcel Grossmann Meeting, 1375

32. **K. Acharyya**, S. K.Chakrabarti and S. Chakrabarti, 2003, "Formation of Simplest Bio-Molecules During Collapse of an Interstellar Cloud", J.Seckbach (Eds.)

33. S. K.Chakrabarti, S. Chakrabarti and **K. Acharyya**, 2003, "Fate of Glycine During Collapse of Interstellar Clouds and Star Formation", J.Seckbach (Eds.)

34. **K. Acharya**, S. Chakrabarti and S. K. Chakrabarti, 2003, "Formation of bio-molecules during star formation" in Proceedings of "Recent Trends in Astro and Plasma physics in India", S. K. Chakrabarti, S. Das, M. Khan and B. Basu (Eds.) p 259

35. **K. Acharya**, S. K. Chakrabarti and D. Molteni, 2002, "Wind Induced Instabilities in Accretion Flow Around Black Holes", Bulletin of Astronomical Society of India, 30, 317

36. **K. Acharya**, S. Chakrabarti and S. K. Chakrabarti, "On the Possibility of Formation of Organic Molecules during star formation", 2002, Proceedings of the National Space Science Symposium p. 380

37. D. Molteni, M.A. Valenza, G. Gerardi, S. K. Chakrabarti, **K. Acharyya**, 2002, "The Many Ways a Shock Wave Can Oscillate Close to a Black Hole", Proceedings of IXth Marcel Grossman Meeting, Ed. Remo Ruffini

38. **K. Acharya**, S. K. Chakrabarti, D. Molteni, O. Kuznetsov and D. Bisikalo, 2001, "Numerical Simulation of Bending Wave Instability of an Accretion Disk", Proceedings of "Recent Trends in Astro and Plasma physics in India", S. K. Chakrabarti, S. Das, M. Khan and B. Basu (Eds.) p. 159

Edited Volume and Internal Scientific Reports:

1. **Co-edited** an 'Edited Volume' on "Chemical Evolution of Star Forming Region and Origin of Life" published by AIP, Volume - 1543, 2013.

2. I was a member of the **feasibility study team for Balloon probe for Venus**, which submitted the feasibility report for a balloon probe for Venus.

3. Contributed significantly in writing the "Ballooning from Venus" in "VISION and EXPLORATIONS for Planetary Sciences in the Decades 2025 - 2060", document was submitted to ISRO.

Science Outreach

1. Regularly participated in the PRL Open house program and served as a member of National Science Day committee 2019, this committee organizes various activities to celebrate national science day.
2. Participated in PRL Science Express program, in which we demonstrate experiments to school children. Delivered a public lecture on “Search For Extraterrestrial Life”.
3. I was also the Coordinator for the pan-India Essay competition (VOICE-2019) to commemorate the birth-centenary of Prof. Vikram Sarabhai. I am also the Chairman of VOICE-2020, which is a continuation of VOICE-2019.
4. Delivered a public lecture on “Search For Extraterrestrial Life” at British Council’s library Ahmadabad (May, 2017).