

CURRICULUM VITAE

Dr. Hema Chutani (Associate Professor)

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EDUCATIONAL QUALIFICATION

1. Ph.D. degree entitled “Electron Scattering with Tri-Atomic and Tetra-Atomic Molecules using *R*-Matrix Method” awarded in March 2010 by University of Delhi.
2. Passed CSIR-UGC JRF (NET) examination held in June 2002.
3. M.Sc. (Physics) from University of Delhi in 2002 and secured 83.2%. (**Second Topper in the University**). (**University Ranker**)
4. B.Sc. (Hons.) Physics from Ramjas College, University of Delhi in 2000 and secured 77.26%. (First Position in College)

TEACHING EXPERIENCE

1. **Associate Professor**, Department of Physics and Electronics, Hansraj College (Since July 22, 2018)
2. **Assistant Professor**, Department of Physics and Electronics, Hansraj College (August 4, 2005 – July 21, 2018)

LIST OF PUBLISHED PAPERS IN JOURNALS

1. P. Tiwari, M. Verma, Ambika, **H. Chutani**, P. P. Singh, S. Kanodia, T. Verma, Titanium dioxide-based nanoparticles and their applications in water remediation, Journal of Environmental Engineering and Science, Vol. 19, Issue 1 (2024) pp. 46-54 (ISSN 1496-2551) (<https://doi.org/10.1680/jenes.22.00095>)
2. P S Rawat, S Kumar, **H Chutani**, and M Goyal, Systematics of Reduced B(E3) Transition

- Probabilities and Configurations of Octupole ($\Delta I=3$) Isomers in Mass $A \sim 200$ Region, J. Nucl. Phys. Mat. Sci. Rad. A. Vol. 9, No. 2 (2022), pp.177–185 (ISSN: 2321-9289)
3. Anuj, S. Kumar, Neelam, S. K. Mandal, Naveen Kumar, S. Saha, J. Sethi, T. Trivedi, **H. Chutani** and M. Goyal, Assignment of the Spin and Parity to the Excited States of the $^{85,86}\text{Rb}$ Nuclei, J. Nucl. Phys. Mat. Sci. Rad. A. Vol. 9, No. 2 (2022), pp.151–159 (ISSN: 2321-9289)
 4. **Hema Munjal** and K. L. Baluja, Electron scattering with a SiF_2 molecule using the R-matrix method, Phys. Rev. A 80 (2009) 052704. (ISSN: 2469-9926)
 5. **Hema Munjal**, K. L. Baluja and Jonathan Tennyson, Electron collisions with the NO_2 radical using the R-matrix method, Phys. Rev. A 79 (2009) 032712. (ISSN: 2469-9926)
 6. **Hema Munjal** and K. L. Baluja, Electron-impact study of PH_3 : an R-matrix approach, J. Phys. B : At. Mol. Opt. Phys. 40 (2007) 1713. (ISSN : 0953-4075)
 7. **Hema Munjal** and K. L. Baluja, Low-energy electron scattering with polar molecule NH_3 using the R-matrix method, Phys. Rev. A 74 (2006) 032712. (ISSN: 2469-9926)
 8. **Hema Munjal** and K. L. Baluja, Elastic and excitation processes of electron impact on C_3 using the R-matrix method, J. Phys. B : At. Mol. Opt. Phys. 39 (2006) 3185. (ISSN : 0953-4075)

CONTRIBUTION TO ADMINISTRATIVE COMMITTEES

1. Member, Spic-Macay, Hansraj College, 2024-25
2. Faculty Volunteer, Centralised ECA admissions, August-September 2024
3. Member, Department Lab Infrastructure Committee, Department of Physics and Electronics, Hansraj College, 2024-25
4. **Convener**, ECA, Hansraj College, 2023-24
5. **Nodal Officer**, Inter-college Fine Arts Competition, Culture Council, University of Delhi, 2023-24
6. **Nodal Officer**, ECA Trials (Creative Writing), University of Delhi, 2023-24
7. Member, Purchase Committee, Department of Physics and Electronics, Hansraj College, 2023-24
8. Member, Workload and Time Table Committee, Department of Physics and Electronics, Hansraj College, 2023-24
9. Member, Department Lab Infrastructure Committee, Department of Physics and Electronics, Hansraj College, 2023-24
10. **Convener**, ECA, Hansraj College, 2022-23

11. **Nodal Officer**, ECA Trials (Creative Writing), University of Delhi, 2022-23
12. **Nodal Officer**, Inter-college Theatre (Mime) Competition, Culture Council, University of Delhi, 2022-23
13. Member, Department Administrative Committee, Department of Physics and Electronics, Hansraj College, 2022-23
14. Member, Department Lab Infrastructure Committee, Department of Physics and Electronics, Hansraj College, 2022-23
15. Department Nominee, NAAC Criterion 1, Department of Physics and Electronics, Hansraj College, 2022-23
16. Member, Department Screening Committee, Department of Physics and Electronics, Hansraj College, 2022-23
17. **Teacher In Charge**, Department of Physics and Electronics, Hansraj College, 2021-22
18. **Superintendent**, University Practical Examinations, Department of Physics and Electronics, Hansraj College, 2021-22
19. **Admission In Charge**, B. Sc. (H) Physics Admissions, Department of Physics and Electronics, Hansraj College, 2021-22
20. **Convener**, Workload and Time Table Committee, Department of Physics and Electronics, Hansraj College, 2021-22
21. **Convener**, Monitoring Committee, Department of Physics and Electronics, Hansraj College, 2021-22
22. **Convener**, Departmental Website Advisory Committee, Department of Physics and Electronics, Hansraj College, 2021-22
23. Member, Purchase Committee, Department of Physics and Electronics, Hansraj College, 2021-22
24. Member, Department Screening Committee, Department of Physics and Electronics, Hansraj College, 2021-22
25. Member, Central Admission Committee, Hansraj College, 2021-22
26. Member, Hostel Admission Committee, Hansraj College, 2021-22
27. Member, Central Purchase Committee, Hansraj College, 2021-22
28. Member, Grievance Committee, Hansraj College, 2021-22
29. Member, Central Workload Committee, Hansraj College, 2021-22
30. Member, Central Time Table Committee, Hansraj College, 2021-22

31. **Co-convenor**, ECA, Hansraj College, 2020-21.
32. **Convenor**, Department Admissions (M. Sc. Physics), Department of Physics and Electronics, Hansraj College, 2020-21.
33. Member, Administrative Committee, Department of Physics and Electronics, Hansraj College, 2020-21.
34. Member, Department Lab Infrastructure Committee, Department of Physics and Electronics, Hansraj College, 2020-21.
35. **Co-convenor**, ECA, Hansraj College, 2019-20.
36. **Superintendent Practical Examinations**, Department of Physics and Electronics, Hansraj College, November 2019.
37. Member, Time Table Committee, Department of Physics and Electronics, Hansraj College, 2019-20.
38. Member, Purchase Committee, Department of Physics and Electronics, Hansraj College, 2019-20.
39. Member, Department Lab Infrastructure Committee, Department of Physics and Electronics, Hansraj College, 2019-20.
40. **Convenor**, Music and Dance Society, Hansraj College, 2018-19.
41. Member, Environment Awareness Committee, Hansraj College, 2018-19.
42. **Convenor**, Department Admissions (M. Sc. Physics), Department of Physics and Electronics, Hansraj College, 2018-19.
43. **Convenor**, Music and Dance Society, Hansraj College, 2017-18
44. Member, Canteen Committee, Hansraj College, 2017-18
45. Member, Department Lab Infrastructure Committee, Department of Physics and Electronics, Hansraj College, 2017-18.
46. **Convenor**, Music and Dance Society, Hansraj College, 2016-17
47. Member, Canteen Committee, Hansraj College, 2016-17
48. Member, Purchase Committee, Department of Physics and Electronics, Hansraj College, 2016-17
49. Member, Time Table Committee, Department of Physics and Electronics, Hansraj College, 2016-17
50. Member, Department NAAC Presentation Committee , Department of Physics and Electronics, Hansraj College, 2016-17
51. **Convenor**, Library Committee, Department of Physics and Electronics, Hansraj College, 2015-16

52. **Convener**, Dance Society, Hansraj College, 2015-16.
53. Member, Internal Complaints Committee, Hansraj College, 2015-16.
54. Member, Student Welfare Committee, Hansraj College, 2015-16.
55. Member, Department Lab Infrastructure Committee, Department of Physics and Electronics, Hansraj College, 2015-16.
56. Member, Department Lab Infrastructure Committee, Department of Physics and Electronics, Hansraj College, 2014-15.
57. Member, Student Welfare Committee, Hansraj College, 2013-14.
58. Member, Academic Affairs Committee, Hansraj College, 2013-14.
59. Member, Time Table Committee, Department of Physics and Electronics, Hansraj College, 2013-14.
60. Member, Purchase Committee, Department of Physics and Electronics, Hansraj College, 2012-13
61. **Superintendent Practical Examinations**, Department of Physics and Electronics, Hansraj College, April 2012
62. **Superintendent Practical Examinations**, Department of Physics and Electronics, Hansraj College, November 2011.
63. **Convener**, Physics and Electronics Society: LUMEN, Hansraj College, 2011-12.
64. Member, Student Welfare Committee, Hansraj College, 2011-12.
65. Worked with Admission Committee (Sciences), Hansraj College, 2009-10.

PAPER PRESENTATION

1. "International Conference on Nuclear Physics and Applications", **Oral Presentation**, Department of Physics and Astrophysics, University of Delhi, October 21-25, 2024
2. "67th DAE-BRNS Symposium on Nuclear Physics", **Proceedings of the DAE Symp. on Nucl. Phys. 67 (2023)**, Indore, December 09 - December 13, 2023
3. "Advanced Materials: Theory and Applications", **Poster Presentation**, UGC-DRDO-CSIR sponsored National Conference, Department of Physics and Electronics, Hansraj College, September 26-28, 2019.
4. "Nanotechnology: Emerging Frontiers and Applications", **Oral Presentation**, National Workshop, Department of Physics and Department of Chemistry, Shyam Lal College, January 30-31, 2017.
5. "XVI National Conference on Atomic and Molecular Physics", **Poster Presentation**, TIFR,

Mumbai, January 8-11, 2007

6. “XV National Conference on Atomic and Molecular Physics”, **Poster Presentation**, PRL, Ahmedabad, December 20-23, 2004

CONFERENCES/WORKSHOPS/FDP/SEMINARS ORGANIZED

1. Member, Organizing Committee, “International Symposium on Quantum Computing and security with Artificial Intelligence”, Department of Physics and Electronics, Hansraj College, November 12, 2024
2. Member, Local Organizing Committee, " International Conference on Nuclear Physics and Applications", Department of Physics and Astrophysics in collaboration with Sri Aurobindo College and Hansraj College, University of Delhi, October 21 - 25, 2024
3. **Convener**, "Crystals- For Science, Society and Applications", Interactive session, Department of Physics and Electronics, Hansraj College, October 17, 2024
4. **Coordinator**, "Essentials of Legal & IP protection in startup", Session, IIC Hansraj College, April 25, 2024.
5. **Co-Convener**, "Statistics of Finite Level Systems", Seminar, SLC, IIC and Department of Physics and Electronics, Hansraj College, February 22, 2024.
6. Member, Steering Committee, “INTERNATIONAL SYMPOSIUM ON NUCLEAR ENERGY SOLUTIONS AND FUTURE ASPECTS (ISNESFA-2023)”, Department of Physics and Electronics, Hansraj College, University of Delhi and School of Physical Sciences, Jawaharlal Nehru University, March 16-17, 2023.
7. **Convener**, "Basic Instrumentation Skills", Laboratory Staff Training Program, IQAC and Department of Physics and Electronics, Hansraj College, July 12, 14 and 15, 2022
8. **Coordinator**, "Solid Waste Management in India- A comparative analysis", Student Learning Centre, IQAC sponsored Webinar, Department of Physics and Electronics, Hansraj College, August 28, 2021.
9. **Convener**, “Advanced Materials : Theory and Applications”, UGC-DRDO-CSIR sponsored National Conference, Department of Physics and Electronics, Hansraj College, September 26-28, 2019.
10. **Convener**, “Hands on Training Program for the Laboratory staff”, Workshop, IQAC and Department of Physics and Electronics, Hansraj College, June 13 and 17, 2019.
11. **Convener**, “Introduction to Scilab”, DBT sponsored Faculty Development Workshop, Department of Physics and Electronics, Hansraj College, September 22-23, 2017.
12. Member, “Characterization of Materials by X-ray Diffraction”, DBT sponsored Workshop, Department of Physics and Electronics, Hansraj College, February 23-24, 2016.

TRAINING COURSES (Refresher/Equivalent FDP and Orientation courses)

1. Three Days Lecture Series (Online) Workshop faculty development Programme on “NEP 2020: Delhi University Undergraduate Curriculum Framework 2022” from January 27 - January 29, 2022 organized by ILL, University of Delhi in collaboration with Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi.
2. One week (Online) Interdisciplinary Faculty Development Programme on “Roadmap For Building New India With New Education Policy” from 21st July – 25th July 2021 organized by IQAC, Hansraj College in collaboration with Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi
3. One week (Online) Faculty Development Programme on “E-content Generation and Managing Online Teaching” from December 11- December 17, 2020 organized by Sri Aurobindo College (E), University of Delhi in collaboration with Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi.
4. One week (Online) Faculty Development Programme on 'Research Methodology and Data Analysis' from December 19 - December 24, 2020 organized by Faculty Development Centre, M. D. University, Rohtak, Haryana.
5. Two weeks interdisciplinary Faculty Development Programme on “Challenges before the academia in the era of Gadgets, E-Communication and Artificial Intelligence” from December 15, 2018 to December 28, 2018 organized by Mahatma Hansraj Faculty Development Centre, Hansraj College, University of Delhi.
6. Refresher Course in Physics from October 13, 2016 to November 03, 2016 organized by CPDHE, University of Delhi.
7. Refresher Course in Physics and Electronics from September 20, 2012 to October 11, 2012 organized by CPDHE, University of Delhi.
8. Orientation Programme from December 13, 2011 to January 9, 2012 organized by CPDHE, University of Delhi.

RESOURCE PERSON

1. **Resource Person, “Skill Enhancement Program for Laboratory Staff”, Mahatma Hansraj Faculty Development Centre, Hansraj College in collaboration with Department of Physics and Electronics, Hansraj College, University of Delhi, 19th–20th June, 2023**

2. **Resource Person, "ICT Tools for Digitalizing the Labs"**, IQAC sponsored Lab Staff Training Program, Department of Physics and Electronics, Hansraj College, **August 23, 25, 26 and 27, 2021**
3. **Resource Person, "DU -Pre-entrance summer school-2018"**, ILL, University of Delhi.
4. **Resource Person, "DU -Pre-entrance summer school-2017"**, ILL, University of Delhi.

COMPLETED PROJECTS

1. "To study the effect of filters on the optical activity of different sugar solutions", Minor DBT Project, 2017-18.
2. "To study the bending of beams and determine the Young's modulus of the material of a bar (a meter rod) by using it as a cantilever", Minor DBT Project, 2017-18.
3. "To determine Specific Rotation of Optically Active Substances", Minor DBT Project, 2016-17.
4. "To design an off-balance Wheatstone Bridge and investigating the dependence of the bridge linearity and bridge sensitivity on circuit parameters", Minor DBT Project, 2016-17.
5. "Study of Structural Properties of using X-ray diffraction", Minor DBT Project, 2016-17.
6. "Development of Visible Light activated photo catalyst for water treatment", UGC Innovation Project, 2015-16.

Participation in Conferences/Seminars/Workshops/Talks/Lectures/Webinars

1. "Familiarization with Service Rules", Seminar, Staff Association, Hansraj College, April 22, 2024
2. " ShodhShuddhi / PDS(Special Training on DrillBit)" , One-Day National Workshop, Delhi University Library System, University of Delhi, Delhi 110007 in Collaboration With Balani Infotech Pvt Ltd, Noida & DrillBit, Bengaluru, February 15, 2024.
3. "NEP 2020 : Delhi University Undergraduate Curriculum Framework 2022", Three Days Lecture Series, Institute of Lifelong Learning, University of Delhi in collaboration with Mahatma Hansraj Faculty Development Centre, Hansraj College, 27th - 29th January, 2022.
4. "Virtual Labs", Online workshop, Department of Physics and Electronics, Hansraj College in collaboration with Indian Institute of Delhi, Delhi, October 04, 2021.
5. "New Initiatives in Examination and Evaluation by University of Delhi", Webinar, Mahatma Hansraj Faculty Development Centre, Hansraj College, July 10, 2021.
6. "'OBE: Examination & Evaluation", Webinar, Mahatma Hansraj Faculty Development Centre,

Hansraj College, June 22, 2021.

7. "Student Learning Centre : Objectives and Perspectives", Webinar, Student Learning Centre, IQAC, Hansraj College, July 13, 2020.
8. "Simulation in Physics", National Online Experimental Workshop, Indian Association of Physics Teachers – Asian Physics Olympiad Cell, July 10 – 12, 2020.
9. "Basic Documentation for Teachers", Webinar, Paramarsh and IQAC, Hansraj College, June 22, 2020.
10. "Quest for Quality : Ranking and Accreditation", Webinar, IQAC, Hansraj College, May 23, 2020.
11. "Role of ICC and Prevention, Prohibition and Redressal of Sexual Harassment of Workmen at Workplace", Webinar, Internal Complaints Committee and IQAC, Hansraj College, May 22, 2020.
12. "Covid 19 : Challenges and Road Ahead", Webinar, Mahatma Hansraj Faculty Development Centre, Hansraj College, May 07-09, 2020.
13. "Strengthening the immune system with Naturopathy", Webinar, Department of Botany and IQAC, Hansraj College, May 06, 2020.
14. "Stress Management during Covid-19 Phase", Webinar, Mahatma Hansraj Faculty Development Centre, Hansraj College, May 01-03, 2020.
15. "Leadership Role in Uncertain Times", Webinar, Mahatma Hansraj Faculty Development Centre, Hansraj College, April 30, 2020.
16. "Crime against women in conflict areas and areas affected by natural calamities", Collaborative Seminar, Women Development Cell, Hansraj College, January 31, 2020.
17. "Indo-US Colloquium on Recent Developments in Interdisciplinary Research", IQAC, Department of Chemistry, Hansraj College, July 02, 2018.
18. "Advances in Optoelectronics" and "MATLAB", DBT sponsored Faculty Development Program, Department of Physics and Electronics, Hansraj College, October 04, 2017.
19. "Quantum Entanglement and the EPR Paradox" and "Computer Interfaced Science Experiments using EXPEYES", Seminar cum Workshop, Department of Physics and Electronics, Hansraj College, March 30, 2017.
20. "Embedded Systems and Synthesis of Nano-materials", Faculty Development Workshop, Department of Physics and Electronics and IQAC, Hansraj College, January 6-7, 2017.
21. "E-content creation in Physics", Capacity –Building Workshop, Institute of Life Long Learning (ILL), University of Delhi, June 21, 2016.
22. "Active Learning Integrating Hands on Experiments and Multimedia resources", Collaborative Workshop, Miranda House, University of Delhi, October 7-8, 2013

ASSOCIATION WITH PROFESSIONAL BODIES

1. Indian Association of Physics Teachers, Kanpur (Life time Membership)
2. Indian Association of Analytical Scientists, Faridabad (Life time Membership)

OTHERS

1. Participated in Cultural Programme of Staff Association, Hansraj College in 2010-11.
2. Participated in Badminton Women's Singles of Staff Association, Hansraj College in 2010-11.