




DEPARTMENT OF CHEMISTRY
DYAL SINGH COLLEGE, UNIVERSITY OF DELHI
FACULTY DETAIL



| Title | Prof | First Name | AMIT | Last Name | KUMAR | Photograph |
|--|--------|---|------|-----------|-------------|---|
| Designation | | PROFESSOR | | | |  |
| Address | | DEPARTMENT OF CHEMISTRY DYAL SINGH COLLEGE UNIVERSITY OF DELHI LODI ROAD, NEW DELHI 110003 | | | | |
| Phone No | Office | 01124367819, 01124365908 | | | | |
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| Web-Page | | | | | | |
| Educational Qualifications | | | | | | |
| Degree | | Institution | | | Year | |
| B.Sc. (H) Chemistry | | University of Delhi | | | 2000 | |
| M.Sc. Chemistry | | Department of Chemistry University of Delhi | | | 2002 | |
| Ph.D. | | Department of Chemistry University of Delhi | | | 2007 | |
| Career Profile | | | | | | |
| 22nd August' 2002 – Continuing till date Professor, Department of Chemistry, Dyal Singh College, University of Delhi | | | | | | |
| I view teaching as an interesting, challenging, and rewarding experience, and consider it to be an important part of an academic position. With my varied teaching experience, research achievements and devoted working ethics, as an enthusiastic faculty member, I continuously strive to develop and teach new courses and serve my institution and students for an enhanced learning experience. | | | | | | |
| Administrative Assignments (From 1st July 2019 onwards) | | | | | | |
| <ol style="list-style-type: none">Nodal Officer, NIRF Rankings, Dyal Singh College.Nodal Officer, SEC/ VAC/ AEC Courses, Dyal Singh College, University of Delhi.Convener Syllabus Drafting Committee, under UGCF-2022, Department of Chemistry, University of Delhi.Member Selection Committee, for promotions and appointments for various Organization i.e. University of Delhi and HPSC, National Productivity Council (NPC) etc.Invited Member, Committee of Courses, Department of Chemistry, University of DelhiMember, Research & Development Cell, IQAC Dyal Singh College, University of Delhi.Special Invitee Member, IQAC Dyal Singh College, University of Delhi.Member, Screening Committee of Faculty Promotions (Associate Professor and Professor)Member Sports Committee, Dyal Singh College, University of DelhiMember Admission Committee (Sports Admissions), Dyal Singh College, University of DelhiConvener Chemistry Society, Department of Chemistry, Dyal Singh College, University of DelhiMember Library Committee, Dyal Singh College, University of DelhiMember Alumni Association, Department of Chemistry, Dyal Singh College, University of DelhiMember, Time Table Committee, Department of Chemistry, Dyal Singh College, University of DelhiMember, Academic Committee, Dyal Singh College, University of DelhiMember Student Advisory Committee, Dyal Singh College, University of Delhi | | | | | | |

17. Member Student Union Elections Committee, Dyal Singh College, University of Delhi

18. NAAC Visit, Preparation Committee, Dyal Singh College, University of Delhi

19. Committee for Housekeeping and Security Services, Dyal Singh College, University of Delhi

Areas of Interest / Specialization

Physical Chemistry, Theoretical Studies, Computational Chemistry, Nano Science and nanomaterials, Pharmaceuticals, Antioxidant Chemistry, Polymer Chemistry, Conducting Polymers and Artificial Intelligence in Chemistry.

Teaching & Research

Teaching: I view teaching as an interesting, challenging, and rewarding experience, and consider it to be an important part of an academic position. With specialization in physical chemistry, I consider physical chemistry as a demanding but richly rewarding subject. It underlies all chemistry, and is becoming increasingly important as the investigative and computational aspects of chemistry become more sophisticated. As one of the strategic aims, I am focused to to the opportunity to develop and teach new courses. My involvement with teaching besides the classroom experience also includes, project supervision, seminar series and group discussion.

Research: My research interest lies in the field of Electrically Conducting Polymers, Antioxidants Chemistry, Computational Chemistry – First Principles Theoretical Studies especially DFT, Drug –Protein interactions; Molecular Docking studies, Material Science and Metal Oxide Nanomaterials. In short I state that I look forward to developing an educational environment to train a new breed of interdisciplinary researchers who can respond to the needs of the society

Subjects Taught

Physical Chemistry- Quantum Chemistry, Chemical Thermodynamics, Phase Equilibria and Electrochemistry etc.

Research Guidance

1. Dr Priti Yadav, NSIT, University of Delhi, (Date of Award of Ph.D: 21.05.2024)
2. Ms. Manisha Gautam, SRM University Meerut, Uttar Pradesh, (Pursuing Since 25.02.2021)

Publications Profile

Research Papers

1. Structural characterisation and theoretical study of a dinuclearcopper(II) complex bridged by meta-phenylenediamine moiety.
Mukesh Kumar, Shyam Kishore, **Amit Kumar**, Ajay Kumar Bhagi and Rohith John
Journal of Molecular Structure, 1199 (2020) 126996-127005.
2. Structural Features and Biological Analysis: Schiff's Base Ligand and its Coordination Compounds
Seema Gautam, **Amit Kumar**, Navneet Manav, Jugmender Singh, and Sulekh Chandra
Indian Drugs, 58 (7) (2021) 22-31. July 2021
3. N-diethylaminosalicylidene based "Turn-on" Fluorescent Schiff base Chemosensor for Al³⁺ ion: Synthesis, Characterisation and DFT/TD-DFT Studies
Mukesh Kumar, **Amit Kumar**, Shyam Kishore, Santosh Kumar, Navneet Manav, Ajay Kumar Bhagi, Sunil Kumar and Rohith P John
Journal of Molecular Structure, 1247 (2022) 131257- 131268.

4. A Binuclear Gadolinium Complex of 8-hydroxyquinoline-2-carbaldehyde Salicylhydrazone: Structural Characterisation and Photoluminescence Properties
Mukesh Kumar, **Amit Kumar**, Navneet Manav, Ajay Kumar Bhagi and Rohith P John
Research on Chemical Intermediates 47 (12) (2021) 5119-5133.
5. The framework of nanopesticides: a paradigm in biodiversity
Shashank Shekhar, Shreya Sharma, **Amit Kumar**, Anjali Taneja and Bhasha Sharma
Mater. Adv., 2 (2021) 6569-6588.
6. Bonding Ability of Isophthalic Acid-bis(thiosemicarbazone) to Manganese and Cobalt Metal Ions: Preparation, Spectral Investigation, Computational and in vitro Antipathogenic Screening
S. Gautam, P. Pipil, **Amit Kumar**, Alka, J. Singh, Ravikant, S. Singhal and S.K. Sagar
Asian Journal of Chemistry, 34 (2) (2022) 311-318.
7. Pyrano-pyrazole based Schiff Base for Rapid Colorimetric Detection of Arginine in aqueous and Real Samples (Impact Factor: 3.36)
Rashim Bawa, Nidhi Deswal, Swati Negi, Manu Dalela, **Amit Kumar** and Rakesh Kumar
RSC Advances, 12 (2022) 11942-11952.
8. Dynamic Protein and Polypeptide Hydrogels Based on Schiff Base Co-assembly for Biomedicine
Kartik Sahajpal, Shreya Sharma, Shashank Shekhar, **Amit Kumar**, Mahendra Kumar Meena, Ajay Kumar Bhagi and Bhasha Sharma
Journal of Material Chemistry B, 10 (2022) 3173-3198
9. Scrutinizing the Interaction of Bovine Serum Albumin and Human Hemoglobin with Isatin-triazole Functionalized Rhodamine through Spectroscopic and *In-silico* Approaches
Rashim Bawa, Nidhi Deswal, **Amit Kumar** and Rakesh Kumar
Journal of Molecular Liquids, 360 (2022) 119558
10. Synthesis, structural elucidation, biological screening, and density functional theory calculations of Cu(II), Ni(II), Mn(II), and Co(II) complexes of 20 Z-N-((Z)-2-(6-nitrobenzo[d]thiazol-2-ylimino)-1,2-diphenylethylidene)-5-nitrobenzo[d]thiazol-2-amine Schiff base ligand
Shashank Shekhar, Shreya Sharma, Jude A. Okolie, **Amit Kumar**, Bhasha Sharma, Mahendra Kumar Meena, Ajay Kumar Bhagi, and Anjana Sarkar
Applied Organometallic Chemistry, 36 (8) (2022)
11. One pot synthesis of benzopyranones and benzoxazinones catalyzed by MMO
A K Bhagi, K P Singh, **Amit Kumar**, Priya & Navneet Manav
Indian Journal of Chemistry, [DOI: 10.56042/ijc.v61i1165837](https://doi.org/10.56042/ijc.v61i1165837)
12. Sustainable Polysaccharide Hydrogels Based on Dynamic Schiff Base Linkages as Versatile Building Blocks for Fabricating Advanced Functional Materials
Shashank Shekhar, Vijay Chaudhary, Bhasha Sharma, **Amit Kumar**, Ajay Kumar Bhagi & Kiran Pal Singh
Journal of Polymers and the Environment, 31(4), (2022) 1257–1278
13. Design and development of an unprecedented phosphorescent bidentate iridium (III) complex exhibiting green electroluminescence
Ankit Kumar Rao, **Amit Kumar**, Kalpna Jain, Amarjeet Kaur
Materials Today Communications, 34, (2022) 104973.

14. Design, synthesis, molecular docking and DFT studies on novel melatonin and isatin basedazole derivatives
Keshav Kumar Saini, Ravindra Kumar Upadhyay, Ravi Kant, Arpita Vajpayee, Kalpana Jain, **Amit Kumar**, Lalita S. Kumar and Rakesh Kumar,
RSC Advances, 13(39), (2023) 27525–27534.
15. Bioinspired molecular modeling and antibacterial efficacy of silver/ graphene oxide grafted chitosan nanocomposite for food packaging application
Shashank Shekhar, Vijay Chaudhary, Bhasha Sharma, Purnima Jain, **Amit Kumar**, Ajay Kumar Bhagi, and Mahendra Kumar Meena
Biomass Conversion and Biorefinery, (2023) <https://doi.org/10.1007/s13399-023-04920-4>

Books/ Book Chapter

1. Carbon-based nanomaterials as novel nanosensors, published in book titled **Nanofabrication for Smart Nanosensor Applications**, (Elsevier), 323-347, (26 JUNE 2020)
Shreya Sharma, Shashank Shekhar, Sanjeev Gautam, Bhasha Sharma, **Amit Kumar** and Purnima Jain, <https://doi.org/10.1016/B978-0-12-820702-4.00014-3>
2. Surface Functionalization of Graphene Based Polyhydroxyalkanoates Nanocomposites and Their Applications in the book titled **Graphene Based Biopolymer Nanocomposites** (Springer Nature), 191-202, (18 Dec 2020).
Shreya Sharma, Shashank Shekhar, Anjana Sarkar and **Amit Kumar** https://doi.org/10.1007/978-981-15-9180-8_10
3. Biomimetic nanosystems in theranostics” in the book titled **Advanced Nanoformulations vol III** (Academic Press Science Direct Elsevier Inc), 645-668, (January 2023).
Bhasha Sharma, Shashank Shekhar, **Amit Kumar** and Shreya Sharma <https://doi.org/10.1016/B978-0-323-85785-7.00025-5>
4. “Bioplastics Overview” in the book titled **Biodegradability of Conventional Plastics- Opportunities, Challenges and Misconceptions** (Academic Press Science Direct Elsevier), 69-82, (January 2023).
Shashank Shekhar, Bhasha Sharma, Shreya Sharma, Anjana Sarkar, and **Amit Kumar** <https://doi.org/10.1016/B978-0-323-89858-4.12001-9>

Conference Organization/ Presentations (From 1st July 2019 onwards)

1. One day National workshop “**Molecular modelling and introduction to "Spartan18 Research Software and Oddysey software"** November 13, 2019 Dyal Singh College University of Delhi
Convener
2. One day workshop “**Molecular Visualization Series 2: Learning Chemistry through Oddysey software**”, September 30, 2020, Dyal Singh College University of Delhi (Online Mode)
Convener
3. **Alumni Association Seminar**, February 16, 2022, Dyal Singh College, University of Delhi
Member, Organizing Committee (Online Mode)

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| <p>4. International Conference on “Contributions of Acharya Prafulla Chandra Ray as a Chemist and Freedom Fighter” August 2-3, 2022, Department of Chemistry, University of Delhi Member Organizing Committee</p> <p>5. Workshop on “Computational Methods and Molecular Modelling”, September 2-3, 2022, Department of Chemistry University of Delhi Member Organizing Committee</p> <p>6. International conference on “Current trends in chemical sciences for sustainable living”, Shyam Lal College, University of Delhi, April 4-5, 2024 Chair Technical Session</p> |
| Research Projects (Major Grants/Research Collaboration) (From 1 st July 2019 onwards) |
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| Awards and Distinctions (From 1 st July 2019 onwards) |
| IDMA (Indian Drug Manufacturers Association) Research Award for best paper in discipline of Pharmaceutical Chemistry, 2019. |
| Association With Professional Bodies |
| Indian Society of Analytical Chemists (ISSAS Delhi Chapter: LM-2117) |
| Other Activities like MOOCs/ Patents etc. (From 1 st July 2019 onwards) |
| <p>e-content Moocs</p> <p>e-content module in Moocs for class XIIth on “p- block Elements” in “Swayam” an e-portal of the Ministry of H. R. D., (2019) Amit Kumar</p> <p>Invited Talks in Conferences/ Symposia/ Workshops/Refresher Courses</p> <ol style="list-style-type: none"> Glimpses of Physical Chemistry I Amit Kumar (28 Oct 2019) Chemistry Society Lecture, organised by Department of Chemistry, Shyam Lal College University of Delhi New Delhi 110032 Glimpses of Physical Chemistry II Amit Kumar (15 Nov 2019) Chemistry Society Lecture, organised by Department of Chemistry, Shyam Lal College University of Delhi New Delhi 110032 Computational Chemistry using Softwares: Quantum Mechanics the science behind Amit Kumar (30 Sep 2020) National Webinar on Molecular Visualisation Series 2 on Learning Chemistry through ODYSSEY and Spartan Software organized by Department of Chemistry Dyal Singh College University of Delhi Molecular Visualization and Chemical Properties Interpretation through Odyssey Software Amit Kumar (2 Feb 2021) One Week Faculty Development Program on “Traditional Classroom to Virtual Labs: Improvisation of Teaching and Learning Chemistry” Anwarullom College University of Hyderabad. |

5. Soft Ways as an Aid to Explore Chemistry
Amit Kumar (13 July 2021)
Online Workshop on "Tools for Exploring Chemistry" Rajdhani College University of Delhi July 12-13 2021
6. Interdisciplinarity: An integrated Approach to Teaching-Learning
Amit Kumar (29 July 2021)
Interdisciplinary Studies and Higher Education: Prospects and Challenges
Organised by Mahatma Hansraj Faculty Development Centre under PMMMTT Hans Raj College
University of Delhi July 26-31, 2021.
7. What After Science Degree? Science and Sustainable
Amit Kumar (29 July 2021)
Science Fair
Organised by Internal Quality Assurance Cell Dyal Singh College University of Delhi
February 29, 2024

-Signature of Faculty Member