

**Proforma for information to be provided by the Teaching/ Academic/ Research Staff**



1. Name : ASHISH KUMAR
2. Designation: ASSISTANT PROFESSOR
3. Academic Qualifications: M.Sc., Ph.D.

| S. No. | Degree                      | Institution                        | Year |
|--------|-----------------------------|------------------------------------|------|
| 1      | B.Sc. (Hons.)               | Banaras Hindu University, Varanasi | 2007 |
| 2      | M.Sc.                       | Banaras Hindu University, Varanasi | 2009 |
| 3      | Ph.D. (Inorganic Chemistry) | Banaras Hindu University, Varanasi | 2016 |

4. Area of Specialization: Coordination Chemistry, Supramolecular Chemistry, Materials Chemistry, Applied and Synthetic Inorganic, Organometallic, Transition Metal Chemistry, Molecular Gelation, Host-Guest Chemistry and Recognitions of Cations/ Anions/ Nitro-explosive/ Bio-molecules.

5. Contact Information: E mail: ashish.chem.bhu@gmail.com  
Phone: 7376161366

6. Projects Undertaken as PI/ Co PI: Not yet.

7. Awards/ Recognitions:

- a) **JSPS-standard** Post-doc fellowship (The Japan Society for Promotion of Science), 2017.
- b) **Analyst Thesis Prize (1<sup>st</sup>)** from RSC at International Conference on Recent Advances in Analytical Science in 2016, Banaras Hindu University, Varanasi, U.P. India
- c) **Senior Research Fellowship** (CSIR-UGC-SRF, 2012), CSIR, New Delhi, India
- d) **Junior Research Fellowship** (NET-CSIR-UGC-JRF, 2010) CSIR, New Delhi, India

8. **List of 10 major Publications: (in order of importance)**

1. A Schiff Base and Its Copper(II) Complex as a Highly Selective Chemodosimeter for Mercury(II) Involving Preferential Hydrolysis of Aldimine over an Ester Group  
**Ashish Kumar**, Mrigendra Dubey, Rampal Pandey, Rakesh Kumar Gupta, Amit Kumar, Alok Ch. Kalita, and Daya Shankar Pandey\*  
*Inorganic Chemistry*, 2014, 53, 4944 – 4955.

2. A Saponification-Triggered Gelation of Ester-Based Zn(II) Complex Through Conformational Transformations  
**Ashish Kumar**, Mrigendra Dubey, Amit Kumar, and Daya Shankar Pandey\*  
*Chemical Communications*, **2014**, *50*, 10086 – 10089.
3. Fine-Tuning of Saponification-Triggered Gelation by Strategic Modification of Peripheral Substituents: Gelation Regulators  
**Ashish Kumar**, Roop Shikha Singh, Amit Kumar, Afsar Ali, Arnab Biswas, and Daya Shankar Pandey\*  
*Chemistry - A European Journal*, **2016**, *22*, 13799 – 13804.
4. Detection of Copper(II) and Aluminium(III) by a New bis-benzimidazole Schiff Base in Aqueous Media *via* Distinct Routes  
**Ashish Kumar**, Amit Kumar, Mrigendra Dubey, Arnab Biswas, and Daya Shankar Pandey\*  
*RSC Advances*, **2015**, *5*, 88612 – 88624.
5. Homochiral Coordination Polymeric Gel: Zn<sup>2+</sup>-Induced Conformational Changes Leading to J-aggregated Helical Fibres Formation  
Mrigendra Dubey, **Ashish Kumar**, and Daya Shankar Pandey\*  
*Chemical Communications*, **2014**, *50*, 1675 – 1677.
6. Li<sup>+</sup>-Induced Selective Gelation of Discrete Homochiral Structural Isomers Derived From L-Tartaric Acid  
Mrigendra Dubey, **Ashish Kumar**, Rakesh Kumar Gupta, and Daya Shankar Pandey\*  
*Chemical Communications*, **2014**, *50*, 8144-8147.
7. An Unconventional Mechanistic Insight on Aggregation Induced Emission in Novel Boron-Dipyrromethenes and their Rational Biological Realizations  
Roop Shikha Singh, **Ashish Kumar**, Sujay Mukhopadhyay, Gunjan Sharma, Biplob Koch, and Daya Shankar Pandey\*  
*The Journal of Physical Chemistry C*, **2016**, *120*, 22605–22614.
8. Self-assembled Copper(II) Metallacycles Derived From Asymmetric Schiff Base Ligands: Efficient Hosts For ADP/ATP in Phosphate Buffer  
Amit Kumar, Rampal Pandey, **Ashish Kumar**, Rakesh Kumar Gupta, Mrigendra Dubey, Akbar Mohammed, Shaikh M. Mobin, and Daya Shankar Pandey\*  
*Dalton Transactions*, **2015**, *44*, 17152 – 17165.

9. Cationic Ru(II), Rh(III) and Ir(III) Complexes Containing Cyclic  $\pi$ -Perimeter and 2-Aminophenyl Benzimidazole Ligands: Synthesis, Molecular Structure, DNA and Protein Binding, Cytotoxicity and Anticancer Activity  
Amit Kumar, **Ashish Kumar**, Rakesh Kumar Gupta, Rajendra Prasad Paitandi, Krishna Beer Singh, Surendra Kumar Trigun, Maninder Singh Hundal, and Daya Shankar Pandey\*  
*Journal of Organometallic Chemistry*, **2016**, *801*, 68 – 79.
10. N, N-Diethylamine Appended Binuclear Zn(II) Complexes: Highly Selective and Sensitive Fluorescent Chemosensors for Picric Acid  
Amit Kumar, **Ashish Kumar**, and Daya Shankar Pandey\*  
*Dalton Transactions*, **2016**, *45*, 8475 – 8484.

9. **Additional Information/ Achievements:**

**Research Interests:**

Applied and Synthetic Inorganic, Organometallic, Transition Metal Chemistry, Supramolecular Chemistry, Molecular Gelation Techniques: Development and their Uses, Host-Guest Chemistry and Recognitions of Cations/ Anions/ Nitro-explosive/ Bio-molecules, Development of novel aminocarboxylate derived systems and their exploration in diverse areas to achieve advancement over previously reported systems with greater cost-effective approach.

**Research Skills:**

Expertise in designing and synthesis of small molecular probes, organometallic complexes, coordination polymers to explore their chromogenic/ fluorogenic properties to find their potential use as efficient sensors for cations/anions, ADP/ATP and pH, and their catalytic properties. Expertise in designing and synthesis of novel photoactive compounds and exploring their photoswitching behavior. Metal catalyzed organic and inorganic reactions and multi-step organic transformations.

**Experimental Techniques Awareness:**

Proficient in handling Elemental analyses (C, H, N), Infrared (Perkin-Elmer), UV-visible (Shimadzu UV-1700), Fluorescence spectrophotometer (Perkin-Elmer, Varian Cary Eclipse Fluorescence spectrophotometer), and Cyclic voltammetry (CHI-620). Also capable of solving the single crystal X-ray data by SHELX programme. Expert in handling the softwares like MS-office, Chem-bio Draw, Origin, Mercury, Ortep Gaussian and Diamond. Expertise in interpretation of spectroscopic data from

IR, NMR (1H, 13C and 31P) Mass, UV/Vis, Photoluminescence, Cyclic Voltammetry, Magnetic, TGA-DTA, DSC, PXRD, Rheology and Single Crystal Data and knowledge of SEM, TEM and AFM techniques and DFT.

10. **Full List of Publications:**

1. Fine-Tuning of Saponification-Triggered Gelation by Strategic Modification of Peripheral Substituents: Gelation Regulators  
**Ashish Kumar**, Roop Shikha Singh, Amit Kumar, Afsar Ali, Arnab Biswas, and Daya Shankar Pandey\*  
*Chemistry - A European Journal*, **2016**, 22, 13799 – 13804.
2. Detection of Copper(II) and Aluminium(III) by a New bis-benzimidazole Schiff Base in Aqueous Media *via* Distinct Routes  
**Ashish Kumar**, Amit Kumar, Mrigendra Dubey, Arnab Biswas, and Daya Shankar Pandey\*  
*RSC Advances*, **2015**, 5, 88612 – 88624.
3. A Saponification-Triggered Gelation of Ester-Based Zn(II) Complex Through Conformational Transformations  
**Ashish Kumar**, Mrigendra Dubey, Amit Kumar, and Daya Shankar Pandey\*  
*Chemical Communications*, **2014**, 50, 10086 – 10089.
4. A Schiff Base and Its Copper(II) Complex as a Highly Selective Chemodosimeter for Mercury(II) Involving Preferential Hydrolysis of Aldimine over an Ester Group  
**Ashish Kumar**, Mrigendra Dubey, Rampal Pandey, Rakesh Kumar Gupta, Amit Kumar, Alok Ch. Kalita, and Daya Shankar Pandey\*  
*Inorganic Chemistry*, **2014**, 53, 4944 – 4955.
5. Homochiral Coordination Polymeric Gel: Zn<sup>2+</sup>-Induced Conformational Changes Leading to J-aggregated Helical Fibres Formation  
Mrigendra Dubey, **Ashish Kumar**, and Daya Shankar Pandey\*  
*Chemical Communications*, **2014**, 50, 1675 – 1677.
6. Li<sup>+</sup>-Induced Selective Gelation of Discrete Homochiral Structural Isomers Derived From L-Tartaric Acid  
Mrigendra Dubey, **Ashish Kumar**, Rakesh Kumar Gupta, and Daya Shankar Pandey\*  
*Chemical Communications*, **2014**, 50, 8144-8147.
7. Pyridylphenyl Appended Imidazoquinazoline Based Ratiometric Fluorescence “Turn On” Chemosensor for Hg<sup>2+</sup> and Al<sup>3+</sup> in Aqueous Media  
Amit Kumar, Rampal Pandey, **Ashish Kumar**, and Daya Shankar Pandey\*

- RSC Advances*, **2014**, *4*, 55967 – 55970.
8. Self-assembled Copper(II) Metallacycles Derived From Asymmetric Schiff Base Ligands: Efficient Hosts For ADP/ATP in Phosphate Buffer  
Amit Kumar, Rampal Pandey, **Ashish Kumar**, Rakesh Kumar Gupta, Mrigendra Dubey, Akbar Mohammed, Shaikh M. Mobin, and Daya Shankar Pandey\*  
*Dalton Transactions*, **2015**, *44*, 17152 – 17165.
  9. Can Enantiomer Ligands Produce Structurally Distinct Homochiral MOFs?  
Mrigendra Dubey, **Ashish Kumar**, Vishal M. Dhavale, Sreekumar Kurungot, and Daya Shankar Pandey\*  
*Crystal Engineering and Communication*, **2015**, *17*, 8202 – 8206.
  10. Cationic Ru(II), Rh(III) and Ir(III) Complexes Containing Cyclic  $\pi$ -Perimeter and 2-Aminophenyl Benzimidazole Ligands: Synthesis, Molecular Structure, DNA and Protein Binding, Cytotoxicity and Anticancer Activity  
Amit Kumar, **Ashish Kumar**, Rakesh Kumar Gupta, Rajendra Prasad Paitandi, Krishna Beer Singh, Surendra Kumar Trigun, Maninder Singh Hundal, and Daya Shankar Pandey\*  
*Journal of Organometallic Chemistry*, **2016**, *801*, 68 – 79.
  11. Anion Triggered Metallogels: Demetalation and Crystal Growth Inside The Gel Matrix and Improvement in Viscoelastic Properties Using Au-NPs  
Arnab Biswas, Mrigendra Dubey, Sujay Mukhopadhyay, **Ashish Kumar**, and Daya Shankar Pandey\*  
*Soft Matter*, **2016**, *12*, 2997 – 3003.
  12. N, N-Diethylamine Appended Binuclear Zn(II) Complexes: Highly Selective and Sensitive Fluorescent Chemosensors for Picric Acid  
Amit Kumar, **Ashish Kumar**, and Daya Shankar Pandey\*  
*Dalton Transactions*, **2016**, *45*, 8475 – 8484.
  13. An Unconventional Mechanistic Insight on Aggregation Induced Emission in Novel Boron-Dipyrrromethenes and their Rational Biological Realizations  
Roop Shikha Singh, **Ashish Kumar**, Sujay Mukhopadhyay, Gunjan Sharma, Biplob Koch, and Daya Shankar Pandey\*  
*The Journal of Physical Chemistry C*, **2016**, *120*, 22605–22614.
  14. Strong Luminescence Behavior of Mono- and Dimeric Imidazoquinazolines: Swift OLED Degradation Under Electrical Current

Rampal Pandey, Gábor Méhes, **Ashish Kumar**, Roop Shikha Singh, Amit Kumar, Chihaya Adachi, and Daya Shankar Pandey

*Journal of Luminescence*, **2017**, *181*, 252-260.

15. Heteroleptic 1D Coordination Polymers: 5-Coordinated Zinc(II) Polymer as an Efficient Transesterification Catalyst

Manzoor A. Wani, **Ashish Kumar**, Mrituanjay D. Pandey and Rampal Pandey

*Polyhedron*, **2017**, *126*, 142-149.

16. Spacer Length Dependent Architectural Diversity in bis-dipyrrin Copper(II) Complexes

Rajendra Prasad Paitandi, Roop Shikha Singh, Sujay Mukhopadhyay, **Ashish Kumar**, and Daya Shankar Pandey

*Dalton Transactions*, **2017**, *46*, 5420-5430.

17. Manipulating Metallogel Properties by Luminogens and Their Applications in Cell Imaging

Arnab Biswas, Sujay Mukhopadhyay, Roop Shikha Singh, **Ashish Kumar**, Nishant Kumar Rana, Biplob Koch, and Daya Shankar Pandey

*ACS Omega*, **2018**, *3*, 5417–5425



Signature

Date: 16.07.2018

Place: BHU, Varanasi