




Faculty Details proforma for DU Web-site

Title	Prof./Dr./Mr./ Ms./Mrs.	First Name	Sandeep	Last Name	Kaur	Photograph
Designation		Assistant Professor				
Address Office		Office : Room No. 309, Block C , Multi-Storey building (3 rd floor) Department of Chemistry University of Delhi (North Campus) Delhi - 110007 India Lab : Room No. 217, Block C , Multi-Storey building (2 nd floor)				
Residence		Rajiv Gandhi Hostel for Girls' Authorities Residence Flat No. A 1/2 Dhaka Hostel Complex, Dr Mukherjee Nagar Delhi - 110009 India				
Phone No		-				
Office		-				
Residence		-				
Mobile		-				
Email		skaur@chemistry.du.ac.in sandeepkaur.du@gmail.com				
Web-Page		http://people.du.ac.in/~skaur/				
Educational Qualifications						
Degree	Institution	Year	Details			
Ph.D.	IIT-Bombay	2007	Inorganic Chemistry Thesis topic : Mixed Valency and Valence State Distributions in Polynuclear Ruthenium Frameworks			
M.Phil. / M.Tech.	-	-	-			
M.Sc	Burdwan University	2002	Inorganic Chemistry Dissertation topic : Synthesis, Characterization and Properties			

			of Mono-, Di- and Polynuclear Complexes of Cobalt, Copper and Cadmium. A Self-Assembly Approach
B.Sc (Hons.)	Burdwan University	2000	Chemistry
Any other qualification			
Career Profile			
1. Assistant Professor	University of Delhi, India	July 2010 – till date	
2. Max Planck-India Fellow	Max Planck Institute for Dynamics of Complex Technical Systems, Germany Recipient of <i>DST-Max Planck Fellowship</i> for this position	May–July 2015	
3. Max Planck-India Fellow	Max Planck Institute for Dynamics of Complex Technical Systems, Germany Recipient of <i>DST-Max Planck Fellowship</i> for this position	May–July 2014	
4. Max Planck-India Fellow	Max Planck Institute for Dynamics of Complex Technical Systems, Germany Recipient of <i>DST-Max Planck Fellowship</i> for this position	June–July 2013	
5. Visiting Scientist	Uppsala University, Sweden	June – 2012	
6. Visiting Scientist	Uppsala University, Sweden	November – 2011	
7. Post Doctoral Fellow	Uppsala University, Sweden Recipient of <i>Wenner-Gren Fellowship</i> for this position	April 2009 – July 2010	
8. Post Doctoral Fellow	Stanford University, USA	January 2007 – January 2008	
9. Visiting Researcher	Stuttgart University, Germany	June–July 2005	
Administrative Assignments			
<ol style="list-style-type: none"> 1. Resident Tutor, Rajiv Gandhi Hostel for Girls, May 2011-till date 2. Bill Committee, Department of Chemistry, Jan 2015-present 3. UV & Fluorimeter Committee, Department of Chemistry, Jan 2015-present 4. Seminar Committee Member, Department of Chemistry, 2011-2012 5. FTIR Committee Member, Department of Chemistry, 2013-2014 6. Deputy Coordinator, Centralized Evaluation Center (CEC for M.Sc and M.Tech), Department of Chemistry, Nov-Dec, 2014 7. Member of Committee constituted to combat holi hooliganism, Department of Chemistry, March-2015 			

Areas of Interest / Specialization
<i>Coordination Chemistry, Bio - inorganic Chemistry, Catalysis</i>
Subjects Taught
<p>1. M.Tech "Chemical Synthesis and Process Technologies", University of Delhi, July-Dec 2011 Semester I <i>i) Course 103-Section B-Principles of Group Theory and its Applications in Spectroscopy</i></p> <p>2. M.Sc (Previous), University of Delhi Semester I : July-Dec, 2010 & 2011 <i>(i) Course 101-Inorganic Chemistry- Section B : Supramolecular and Photoinorganic Chemistry</i></p> <p>Semester I : July-Dec, 2012, 2013, 2014 & 2015 <i>(i) Course 101-Inorganic Chemistry- Section A : Stability Constants of Complexes and their Applications</i></p> <p>Semester I : July-Dec, 2010-2014 <i>(ii) Inorganic Chemistry Practical</i></p> <p>4. M.Sc (Previous), University of Delhi, Jan-June, 2011-2015 Semester II <i>(i) Course 201-Inorganic Chemistry- Section A : Group Theory and its Applications</i> <i>(ii) Inorganic Chemistry Practical</i></p> <p>5. PhD CourseWork, University of Delhi, Jan-June 2011 <i>(i) Unit I : Analytical Techniques for Material Characterization</i></p> <p>6. PhD CourseWork, University of Delhi, Jan-June 2015 <i>(i) Unit VII : Applications of Molecular Symmetry and Group Theory</i></p> <p>7. B.Tech (IIT-Bombay), 2004-2005 <i>Inorganic Chemistry courses (CH 102, CH 115L)</i></p>
Research Guidance
<p><i>Supervision of Doctoral Thesis, under progress : 4</i></p> <ol style="list-style-type: none"> 1. Indresh Kumar Pandey (2011) 2. M. Natarajan (2011) 3. R. Sandhya (2011) 4. Hemlata Faujdar (2015)
Publications Profile
<p><i>A. Research papers published in Refereed/Peer Reviewed Journals</i></p> <p>2015</p> <p>26. Dirion benzenedithiolate complexes Diiron relevant to the [FeFe] hydrogenase active site, I. K. Pandey, S. M. Mobin, N. Diebel, B. Sarkar and Sandeep Kaur-Ghumaan* <i>Eur. J. Inorg. Chem.</i> 2015, DOI: 10.1002/ejic.201500345</p>

25. 1,1'-Bis(Diphenylphosphino)Ferrocene Substituted Diiron Complexes Related to the Active Site of [FeFe]-Hydrogenases : Synthesis, Characterization and DFT Studies, **Sandeep Kaur-Ghumaan***, A. Sreenithya and R. B. Sunoj

J. Chem. Sci. **2015**, *127*, 557-563

24. Hydrogen generation : Aromatic dithiolate-bridged metal carbonyl complexes as hydrogenase catalytic site models, Indresh Kumar Pandey, Mookan Natarajan and **Sandeep Kaur-Ghumaan***

J. Inorg. Biochem. **2015**, *143*, 88-110

2014

23. [NiFe]hydrogenases: How close do structural and functional mimics approach the active site ?, **Sandeep Kaur-Ghumaan*** and M. Stein

Dalton Trans. **2014**, *43*, 9392-9405.

2013

22. Microbial Hydrogen Splitting in the Presence of Oxygen, M. Stein and **Sandeep Kaur-Ghumaan**

Biochem. Soc. Trans. **2013**, *41*, 1317-1324

21. Effect of Cyanide Ligands on the Electronic Structure of [FeFe] Hydrogenase Active Site Model Complexes with an Azadithiolate Ligand, Özlen F. Erdem, M. Stein, **Sandeep Kaur-Ghumaan**, E. J. Reijerse, S. Ott and W. Lubitz

Chem. Eur. J. **2013**, *19*, 14566-14572

2011

20. A model for the [FeFe] hydrogenase active site with a biologically relevant azadithiolate bridge: a spectroscopic and theoretical investigation", Ö. F. Erdem, L. Schwartz, M. Stein, A. Silakov, **Sandeep Kaur-Ghumaan**, P. Huang, S. Ott, E. J. Reijerse and W. Lubitz

Angew. Chem. Int. Ed. **2011**, *50*, 1439-1443

2010

19. Catalytic Hydrogen Evolution from Mononuclear Ferrous Carbonyl Complexes as Minimal Functional Models of the [FeFe] Hydrogenase Active Site, **Sandeep Kaur-Ghumaan**, L. Schwartz, R. Lomoth, M. Stein and S. Ott

Angew. Chem. Int. Ed. **2010**, *49*, 8033-8036

2008

18. Valence State Analysis via Spectroelectrochemistry in Differently Quinonoid Bridged Diruthenium Complexes [(acac)₂Ru(μ-L)Ru(acac)₂]ⁿ⁺ (n = +2, +1, 0, -1, -2), **Sandeep Ghumaan**, B. Sarkar, S. Maji, V. G. Puranik, J. Fiedler, F. A. Urbanos, R. Jimenez-Aparicio, W. Kaim and G. K. Lahiri

Chem. Eur. J. **2008**, *14*, 10816-10828

2007

17. Multiple one-electron oxidation and reduction of trinuclear bis (2,4-pentanedionato)ruthenium complexes with substituted diquinoxalino[2,3-a:2',3'-c]phenazine ligands, **Sandeep Ghumaan**, B. Sarkar, M. P. Patil, J. Fiedler, R. B. Sunoj, W. Kaim and G. K. Lahiri

Polyhedron **2007**, *26*, 3409-3418

16. Ancillary ligand determination of the spin location in both oxidised and reduced forms of diruthenium complexes bridged by bis-bidentate 1,4-bis(2-phenolato)-1,4-diazabutadiene, S. Kar, B. Sarkar, **Sandeep Ghumaan**, M. Leboschka, J. Fiedler, W. Kaim and G. K. Lahiri

Dalton Trans. **2007**, 1934-1938

15. Probing Mixed Valence in a New tppz-Bridged Diruthenium(III,II) Complex $\{(\mu\text{-tppz})[\text{Ru}(\text{bik})\text{Cl}]_2\}^{3+}$ (tppz = 2,3,5,6-Tetrakis(2-pyridyl)pyrazine, bik = 2,2'-Bis(1-methylimidazolyl)ketone): EPR Silence, Intervalence Absorption, and ν CO Line Broadening, M. Koley, B. Sarkar, **Sandeep Ghumaan**, E. Bulak, J. Fiedler, W. Kaim and G. K. Lahiri

Inorg. Chem. **2007**, *46*, 3736-3742

2006

14. 2,2'-dipyridylketone (dpk) as ancillary acceptor and reporter ligand in complexes $[(\text{dpk})(\text{Cl})\text{Ru}(\mu\text{-tppz})\text{Ru}(\text{Cl})(\text{dpk})]^{n+}$ where tppz 2,3,5,6-tetrakis(2-pyridyl)pyrazine, **Sandeep Ghumaan**, B. Sarkar, N. Chanda, M. Sieger, J. Fiedler, W. Kaim and G. K. Lahiri,

Inorg. Chem. **2006**, *45*, 7955-7961

13. An Experimental and Density Functional Theory Approach Towards the Establishment of Preferential Metal or Ligand Based Electron Transfer Processes in Large Quinonoid Bridged Diruthenium Complexes $[(\text{aap})_2\text{Ru}]_2(\mu\text{-BL}^{2-})^{n+}$, aap = 2-Arylazopyridine, **Sandeep Ghumaan**, S. Mukherjee, S. Kar, D. Roy, Shaikh M. Mobin, R. B. Sunoj and G. K. Lahiri

Eur. J. Inorg. Chem. **2006**, 4426-4441

12. 2,4,6-Tris(2-pyridyl)-1,3,5-triazine (tptz)-Derived $[\text{Ru}^{\text{II}}(\text{tptz})(\text{acac})(\text{CH}_3\text{CN})]^{+}$ and Mixed- Valent $[(\text{acac})_2\text{Ru}^{\text{III}}\{(\mu\text{-tptz-H}^+)\}\text{Ru}^{\text{II}}(\text{acac})(\text{CH}_3\text{CN})]^{+}$, **Sandeep Ghumaan**, Sanjib Kar, Shaikh M. Mobin, B. Harish, Vedavati G. Puranik and G. K. Lahiri

Inorg. Chem. **2006**, *45*, 2413-2423

2005

11. A New Coordination Mode of the Photometric Reagent Glyoxalbis(2-hydroxyanil) (H_2gbha): Bis-Bidentate Bridging by gbha^{2-} in the Redox Series $\{(\mu\text{-gbha})[\text{Ru}(\text{acac})_2]_2\}^n$ ($n = -2, -1, 0, +1, +2$), Including a Radical-Bridged Diruthenium(III) and a $\text{Ru}^{\text{III}}/\text{Ru}^{\text{IV}}$ Intermediate, S. Kar, B. Sarkar, **Sandeep Ghumaan**, D. Roy, F. A. Urbanos, J. Fiedler, R. B. Sunoj, R. Jimenez-Aparicio, W. Kaim and G. K. Lahiri

Inorg. Chem. **2005**, *44*, 8715-8722

10. 2,5-Dioxido-1,4-benzoquinonediimine (H_2L^{2-}), a hydrogen-bonding noninnocent bridging ligand related to aminated topaquinone: Different oxidation state distributions in complexes $[(\text{bpy})_2\text{Ru}]_2(\mu\text{-H}_2\text{L})^n$ ($n = 0, +, 2+, 3+, 4+$) and $[(\text{acac})_2\text{Ru}]_2(\mu\text{-H}_2\text{L})^m$ ($m = 2-, -, 0, +, 2+$), S. Kar, B. Sarkar, **Sandeep Ghumaan**, D. Janardanan, J. van Slageren, J. Fiedler, V. G. Puranik, R. B. Sunoj, W. Kaim and G. K. Lahiri

Chem. Eur. J. **2005**, *11*, 4901-4911

9. Sensitive Oxidation State Ambivalence in Unsymmetrical Three-Center (M/Q/M) Systems $[(\text{acac})_2\text{Ru}(\mu\text{-Q})\text{Ru}(\text{acac})_2]^n$, Q = 1,10-Phenanthroline-5,6-dione or 1,10-Phenanthroline-5,6-diimine ($n = +, 0, -, 2-$), **Sandeep Ghumaan**, B. Sarkar, S. Patra, J. van Slageren, J. Fiedler, W. Kaim and G. K. Lahiri

Inorg. Chem. **2005**, *44*, 3210-3214

8. 3,6-Bis(2'-pyridyl)pyridazine (L) and its deprotonated form (L-H⁺)⁻ as ligands for {(acac)₂Ruⁿ⁺} or {(bpy)₂Ru^{m+}}: investigation of mixed valency in [{"(acac)₂Ru}₂(μ-L-H⁺)⁰] and [{"(bpy)₂Ru}₂(μ-L-H⁺)⁴⁺] by spectroelectrochemistry and EPR, **Sandeep Ghumaan**, B. Sarkar, S. Patra, K. Parimal, J. van Slageren, J. Fiedler, W. Kaim, G. K. Lahiri

Dalton Trans. **2005**, 706-712

7. Isomeric ruthenium terpyridine complexes [Ru(trpy)(L)Cl]^{nt} containing the unsymmetrically bidentate acceptor L = 3-amino-6-(3,5-dimethylpyrazol-1-yl)-1,2,4,5-tetrazine. Synthesis, structures, electrochemistry, spectroscopy and DFT calculations, S. Patra, B. Sarkar, **Sandeep Ghumaan**, M. P. Patil, S. M. Mobin, R. B. Sunoj, W. Kaim and G. K. Lahiri

Dalton Trans. **2005**, 1188-1194

6. Tetrazine derived mononuclear Ru^{II}(acac)₂(L) (1), [Ru^{II}(bpy)₂(L)](ClO₄)₂ (2) and [Ru^{II}(bpy)(L)₂](ClO₄)₂ (3) (L = 3-amino-6-(3,5-dimethylpyrazol-1-yl)-1,2,4,5-tetrazine, acac = acetylacetonate, bpy = 2,2'-bipyridine): syntheses, structures, spectra and redox properties, A. Nayak, S. Patra, B. Sarkar, **Sandeep Ghumaan**, V. G. Puranik, W. Kaim and G. K. Lahiri

Polyhedron **2005**, *24*, 333-342

2004

5. Isovalent and Mixed-Valent Diruthenium Complexes [(acac)₂Ru^{II}(μ-bpytz)Ru^{II}(acac)₂] and [(acac)₂Ru^{II}(μ-bpytz)Ru^{III}(acac)₂](ClO₄) (acac = Acetylacetonate and bpytz = 3,6-Bis(3,5-dimethylpyrazolyl)-1,2,4,5-tetrazine): Synthesis, Spectroelectrochemical, and EPR Investigation, S. Patra, B. Sarkar, **Sandeep Ghumaan**, J. Fiedler, W. Kaim and G. K. Lahiri

Inorg. Chem. **2004**, *43*, 6108-6113

4. The triruthenium complex [{"(acac)₂Ru^{II}}]₃(L)] containing a conjugated diquinoxaline[2,3-f:2',3'-h]phenazine (L) bridge and acetylacetonate (acac) as ancillary ligands. Synthesis, spectroelectrochemical and EPR investigation, S. Patra, B. Sarkar, **Sandeep Ghumaan**, J. Fiedler, W. Kaim and G. K. Lahiri

Dalton Trans. **2004**, 754-758

3. {(μ-L)[Ru^{II}(acac)₂]}₂ⁿ, n = 2+, +, 0, -, 2-, with L = 3,3',4,4'-tetraimino-3,3',4,4'-tetrahydrobiphenyl. EPR-supported assignment of NIR absorptions for the paramagnetic intermediates, S. Patra, B. Sarkar, **Sandeep Ghumaan**, J. Fiedler, S. Zalis, W. Kaim and G. K. Lahiri

Dalton Trans. **2004**, 750-753

B. Other Research papers published

2006

2. Tuning intermetallic electronic coupling in polyruthenium systems via molecular architecture. **Sandeep Ghumaan**, and G. K. Lahiri
J. Chem. Sc. **2006**, *118*, 537-545

2005

1. Mixed valency in polyruthenium systems: Diverse effects of ancillary and bridging functionalities. **Sandeep Ghumaan** and G. K. Lahiri

Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005, INOR-827

C. Research papers yet to be published

Conference Organization/ Presentations

- 1. Oral: Dr Sandeep Kaur-Ghumaan**, "*Iron Carbonyl Complexes: Bioinspired Models for the [FeFe] Hydrogenase Active Site*", Department of Chemistry, **Indian Institute of Technology Ropar**, Punjab, 27th March - 2015
- 2. Poster:** I. K. Pandey, M. Natarajan and **Dr Sandeep Kaur-Ghumaan**, "*Biomimetic H₂ evolution catalyzed by dinuclear iron carbonyl complexes with bridged benzene dithiolate ligand*", 17th **CRSI National Symposium in Chemistry**, CSIR- National Chemical Laboratory, **Pune**, February-2015
- 3. Poster:** M. Natarajan, I. K. Pandey and **Dr Sandeep Kaur-Ghumaan**, "*Aromatic- and Aliphatic-Dithiolato Bridged Diiron Carbonyl Complexes: Relevance to the [FeFe] Hydrogenase Active Site*", 17th **CRSI National Symposium in Chemistry**, CSIR-National Chemical Laboratory, **Pune**, February-2015
4. Attended Workshop on electronic structure, atomistic and statistical modeling in Chemistry, Materials and Life Sciences, Department of Chemistry, **University of Delhi**, October-2014
- 5. Oral: Dr Sandeep Kaur-Ghumaan**, "*Catalytic Hydrogen Evolution From Iron Carbonyl Complexes: Bioinspired Models of the [FeFe] Hydrogenase Active Site*", **National conference on Molecules and Materials (M³-2014)**, NIT, Kurukshetra, October-2014
- 6. Oral: Dr Sandeep Kaur-Ghumaan**, "*Models for the [FeFe] Hydrogenase Active Site : Aromatic versus aliphatic dithiolate linkers*", **41st International Conference in Coordination Chemistry (ICCC-41)**, National Institute of Singapore, July-2014
- 7. Poster:** I. K. Pandey, M. Natarajan and **Dr Sandeep Kaur-Ghumaan**, "*Phosphine substituted diiron carbonyl complexes as proton reduction catalysts : Mimicking the [FeFe] hydrogenase enzyme active site*", **20th ISCB International Conference (ISCBC-2014) on Chemistry and Medicinal Plants in Translational Medicine for Healthcare**, Department of Chemistry, University of Delhi, Delhi, March-2014
- 8. Poster:** R. Sandhya, Raunak, S. K. Sethi, **Dr Sandeep Kaur-Ghumaan** and A. K. Mishra, "*Design, Synthesis and characterization of Fluroine-18 labelled MPP derivative as novel D₃ receptor ligand for PET Imaging*", **20th ISCB International Conference (ISCBC-2014) on Chemistry and Medicinal Plants in Translational Medicine for Healthcare**, Department of Chemistry, University of Delhi,

Delhi, March-2014

9. **Poster:** M. Natarajan, I. K. Pandey and **Dr Sandeep Kaur-Ghumaan**, "*Proton reduction by diiron carbonyl complexes : Relevance to the [FeFe] hydrogenase enzymes*", **3rd National Conference on Advances in Chemical & Environmental Sciences (ACES-2014)**, Arya P.G. College, Panipat, Haryana, February-2014
10. **Poster:** **Dr Sandeep Kaur-Ghumaan**, "*[FeFe] hydrogenase active site model complexes : Influence of cyanide ligands on the electronic structure*", **6th National Seminar on New Paradigm in Chemical Sciences (NPICS-2014)**, Department of Chemistry, Punjabi University, Patiala, Punjab, February-2014
11. **Poster:** R. Sandhya, Raunak, S. K. Sethi, **Dr Sandeep Kaur-Ghumaan** and A. K. Mishra, "*Design, Synthesis of novel ⁶⁸Ga(III)-DOTA-Bis methoxyphenylpiperazine derivative for D₃ receptor PET imaging*", **Second World Congress on Gallium-68**, Department of Nuclear Medicine/PET, PGIMER, Chandigarh, Punjab, February-March – 2013
12. **Poster:** R. Sandhya, Raunak, S. K. Sethi, **Dr Sandeep Kaur-Ghumaan** and A. K. Mishra, "*Synthesis and its Pharmacological evaluation of 8-[O-methyl-¹¹C]2-((4-(2-methoxyphenyl)piperazin-1-yl)methyl)quinoline as a novel 5HT_{1A} receptor ligand for PET Imaging*", **EANM**, France, October – 2013
13. **Oral :** R. Sandhya, Raunak, S. K. Sethi, **Dr Sandeep Kaur-Ghumaan** and A. K. Mishra, "*Synthesis, characterization and preclinical evaluation of 1-(3-(4-(3¹⁸Fluoroprpyl)-1H-1,2,3-Triazol-1-yl)propyl)-4-(2-methoxyphenyl)piperazine as novel D₃ receptor ligand for PET Imaging*", **SNMI**, Mumbai, December- 2013
14. **Poster:** M. Natarajan, I. K. Pandey, N. Singh and **Dr Sandeep Kaur-Ghumaan**, "*Diiron carbonyl complexes as catalysts for proton reduction: Pertinence to the [FeFe] hydrogenase enzymes*", **Modern Trends in Inorganic Chemistry (MTIC XV)**, IIT Roorkee, Roorkee, December-2013
15. **Poster:** I. K. Pandey, M. Natarajan and **Dr Sandeep Kaur-Ghumaan**, "*Hydrogen generation from protons by diiron carbonyl complexes: Development of alternative renewable energy resources*", **International Workshop on Green Initiatives in Energy, Environment & Health**, organized by Green Chemistry Centre of Excellence, The Energy and Resources Institute (TERI), Green Chemistry Network Centre, Delhi University, Gautam Buddha University and Green Chemistry Network, sponsored by Royal Society of Chemistry London (North India Section), Delhi, December-2013
16. **Talk and Poster:** **Dr Sandeep Kaur-Ghumaan**, "*Catalytic studies with model complexes*

mimicking the hydrogenase enzymes : Focus on aromatic dithiolate ligand complexes", **9th International School of Organometallic Chemistry (ISOC)**, Camerino, Italy, August-September-**2013**

- 17. Poster & Talk:** I. K. Pandey, M. Natarajan, N. Singh and **Dr Sandeep Kaur-Ghumaan**, "*Catalytic Hydrogen Evolution from Diiron Carbonyl Complexes with Pertinence to the [FeFe] Hydrogenase Enzymes*", **National Symposium on Electrochemical Science & Technology (NSEST)**, Indian Institute of Science (IISc), Bangalore, August-**2013**
- 18.** Attended Mini-Symposium on Solvent Design for Chemical Production Processes, Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, Germany, June-**2013**.
- 19.** Participated in Indo-German Workshop on Advanced Materials for Future Energy requirements (WAMFER), **University of Delhi**, November-**2012**
- 20.** Attended **Consortium in Artificial Photosynthesis (CAP Meeting)**- Uppsala, Sweden, June-**2012**
- 21.** Attended the Solar H₂ Workshop- Gottröra, **Sweden**, November-**2011**
- 22. Poster:** **Dr Sandeep Kaur-Ghumaan**, L. Schwartz, R. Lomoth, M. Stein and S. Ott, "*Catalytic Hydrogen Evolution from Mononuclear Ferrous Carbonyl Complexes with Pertinence to the [Fe] Hydrogenase Active Site*," **9th International Hydrogenase Conference** - Uppsala, Sweden, June-July – **2010**
- 23. Talk:** **Dr Sandeep Kaur-Ghumaan**, "*Electrocatalytic Hydrogen Evolution from a Mononuclear Fe^{II} Complex with Resemblance to the FeS-cluster Free Hydrogenase Active Site*," **Consortium in Artificial Photosynthesis (CAP Meeting)** -Uppsala, Sweden, May - **2010**
- 24. Talk:** **Dr Sandeep Kaur-Ghumaan**, "*Electrocatalytic Hydrogen Evolution from a Mononuclear Fe^{II} Complex with Resemblance to the FeS-cluster Free Hydrogenase Active Site*," **Consortium in Artificial Photosynthesis (CAP Meeting)** -Uppsala, Sweden, December - **2009**
- 25. Poster:** **Dr Sandeep Kaur-Ghumaan**, L. Schwartz, D. Streich and S. Ott, "*Electrocatalytic hydrogen evolution from a mononuclear Iron dithiolate complex resembling the FeS-cluster-free [Fe] hydrogenase active site*," **Molecular Science for Solar Fuels** - Sigtuna, Sweden, November - **2009**
- 26. Talk:** **Dr Sandeep Kaur-Ghumaan**, "*Mixed valency and valence state distributions in polynuclear ruthenium frameworks*," **Consortium in Artificial Photosynthesis (CAP Meeting)** -Uppsala, Sweden, June-**2009**
- 27.** Was a member among 26 students of the Indian team, selected by the Lindau Nobel Laureates Committee, Germany and the Department of Science and Technology, New Delhi, India for

participation in the **56th Nobel Laureates Meeting in Chemistry at Insel Halle** - Lindau, Germany, June - **2006**

28. Talk: Sandeep Ghumaan and G. K. Lahiri, "*Mixed valency in polyruthenium systems : Diverse effects of ancillary and bridging functionalities,*" **229th American Chemical Society (ACS) Meeting**, San Diego, California, USA, March - **2005**

29. Talk: Sandeep Ghumaan and G. K. Lahiri, "*Mixed valency in polyruthenium systems : Diverse effects of ancillary and bridging functionalities,*" **17th Research Scholars Meet**, Somaiya College of Science and Commerce, Mumbai, February - **2005**

30. Poster: Sandeep Ghumaan, S. Kar and G. K. Lahiri, "*A new dinucleating bridging motif of 2,4,6-tris(2-pyridyl)-1,3,5-triazine (tptz) in the mixed valent $[(\text{acac})_2\text{Ru}^{\text{III}}\{\{\mu\text{-tptz-H}^+\}^- \text{Ru}^{\text{II}}(\text{acac})(\text{CH}_3\text{CN})\}]^+$ complex. Formation of iminoester and amidine derivatives via activation of nitrile function,*" **10th Modern Trends in Inorganic Chemistry (MTIC)** at the Indian Institute of Technology (IIT) - Delhi, New Delhi, December - **2005**

31. Poster: Sandeep Ghumaan, N. Chanda, S. Patra, S. Kar and G. K. Lahiri, "*Mixed valence aspects in polyruthenium systems : Diversity based on selective assemblies of ancillary and bridging functionalities,*" **7th National Symposium in Chemistry**, Indian Association for the Cultivation of Science (IACS, Jadavpur), Kolkata, February - **2005**

32. Poster: S. Patra, S. Kar, N. Chanda, Sandeep Ghumaan, G. K. Lahiri, "*Dinuclear and trinuclear ruthenium complexes incorporating selective combinations of ancillary ligands and bridging functionalities: mixed valence aspects, non-linear optical properties and DNA interactions,*" **9th Modern Trends in Inorganic Chemistry (MTIC)**, Indian Institute of Technology (IIT) - Bombay, Mumbai, December - **2003**

33. Participated in the **In House Symposium** organized by the Department of Chemistry at the Indian Institute of Technology (IIT)-Bombay, Mumbai, **March – 2003; March – 2004 and August – 2006.**

Other Listed Abstracts :

34. R. Sandhya, Raunak, S. K. Sethi, **Dr Sandeep Kaur-Ghumaan** and A. K. Mishra, "*Synthesis, characterization and preclinical evaluation of 1-(3-(4-(3¹⁸Fluoropropyl)-1H-1,2,3-Triazol-1-yl)propyl)-4-(2-methoxyphenyl)piperazine as novel D₃ receptor ligand for PET Imaging*", **SNMMI** Vancouver, Canada, June-**2013**

35. Dr Sandeep Kaur-Ghumaan, "*Catalytic Hydrogen Evolution from Iron Carbonyl Complexes with*

Pertinence to the Hydrogenase Enzymes", 5th National Seminar on New Frontiers in Chemistry (NFIC-2013), Department of Chemistry, Punjabi University, Patiala, Punjab, February-2013

36. R. Sandhya, Raunak, S. K. Sethi, **Dr Sandeep Kaur-Ghumaan** and A. K. Mishra "*Potential tumor targeted SPECT probe ^{99m}Tc-TMP-Asp- 8-OHQ: Synthesis, characterization and preclinical evaluation*", **EANM**, Italy, October-2012

Research Projects (Major Grants/Research Collaboration)

1. Project Title :	Bioinorganic Enzyme Active Site Models of Energy Relevance – Synthesis, Characterization and their Catalytic Studies
Period :	1 year
Funding Agency :	<i>University of Delhi</i>
Grant :	Rs. 2.5 lacs (2010, 2011, 2012), Rs. 2.8 lacs (2013) & Rs. 2.7 lacs (2014)

2. Project Title :	Mixed Valence Aspects of Mono- and Dinuclear η^6 -Arene Ruthenium Complexes with Oxygen- and Nitrogen- Based Chelating Ligands : Synthesis and Characterization
Period :	3 years (2015-2018)
Funding Agency :	CSIR
Grant :	Rs. 5 lacs

3. Project Title :	Bioinspired Model Complexes Mimicking the Active Site of the [Fe]-only Hydrogenase Enzymes
Period :	3 years (2012-2015)
Funding Agency :	<i>DST-SERB</i>
Grant :	Rs. 36 lacs

4. Project Title :	Macrocycles as Catalysts, Drug/Drug Carriers and Corrosion Inhibitors
Period :	1st year (2014-2015)
Funding Agency :	DU-DST Purse grant
Grant :	Rs. 2,21,360/-

Awards and Distinctions

1. **CSIR Travel Grant** for attending international conference in Singapore, July-2014
2. Recipient of **Max-Planck India Fellowship**, from DST & Max Planck Group for Research in Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg-Germany (2012)
3. Recipient of **Indo-US Research Fellowship**, from Indo-US Science & Technology Forum (IUSSTF) for Research in Pacific Northwest National Laboratory (2011)
4. Recipient of **Wenner Gren Stiftelserna (Fellowship)**, from Wenner Gren Foundations -Sweden

for Postdoctoral Research (2010)

5. Recipient of **Best Paper award** (given by the Royal Society of Chemistry, West India section) at the **17th Research Scholars Meet** (11th-12th February, **2005**), organised by the Indian Chemical Society at K. J. Somaiya College, Mumbai
6. Teaching Assistantship for undergraduate Inorganic Chemistry courses by IIT-Bombay, **2004-2005**
7. Recipient of Travel award from CSIR and DST New Delhi, India for attending the **229th American Chemical Society (ACS) Meeting**, San Diego, California, USA, March – **2005**
8. Awarded **Senior Research Fellowship** by the Council of Scientific and Industrial Research (CSIR), Govt. of India, New Delhi in **2004**
9. Awarded **Junior Research Fellowship** by the Council of Scientific and Industrial Research, Govt. of India, New Delhi in **2002**
10. Qualified all India level Graduate Aptitude Test in Engineering (**GATE-2002**) with **97.66** percentile
11. Recipient of **Burdwan University Gold Medal** for standing first in M.Sc examination (**2000-2002**)
12. Recipient of **Dr. Panchanan Roy & Late Surendra Kr. Roy Prize** for securing highest marks in M.Sc examination (Burdwan University, **2000-2002**)
13. Recipient of **Gouri Kanta Mukherjee Memorial Gold** for securing highest marks in M.Sc examination (Burdwan University, **2000-2002**)
14. Recipient of **National Scholarship (2000 - 2001)**

Association With Professional Bodies

Memberships :

1. Materials Research Society of India, Bangalore Life member (2014)
2. Catalysis Society of India, Chennai Life member (2014)
3. Indian Council of Chemists, Agra Life member (2014)
4. American Chemical Society member since 2004-present
5. Royal Society of Chemistry member since 2013-present
6. International Union for Pure and Applied Chemistry (IUPAC) member since 2014-present
7. Chemical Research Society of India (CRSI) Life member (2013)
8. Indian Science Congress Association, Kolkata Life member (2014)
9. Indian Chemical Society, Kolkata Life Member (2014)
10. Indian Society of Chemists and Biologists Life Member (2014)

Other Activities

1. DST-Inspire Jury member at the national level, **2012, 2013 & 2014**
2. Attended Orientation programme (**OR-75**) at CPDHE, Delhi University, **2013**
3. Expert member in the Selection Committee for the post of Scientific Officer (Inorganic Chemistry) at Pharmacopoeia Commission for Indian Medicine & Homoeopathy, Department of AYUSH, Ministry of Health & Family Welfare, Govt. of India, Nov-**2014**

4. Paper setter for Uttarakhand State Eligibility Test for Lectureship (SET) conducted by Kumaun University, Feb-**2015**
5. Evaluator for project Udaan launched by CBSE, Feb-March **2015**
6. Reviewer of several journals