



Faculty Details proforma for DU Web-site

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cc: director@ducc.du.ac.in)

Title	Dr. (Ms)	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		-				
Phone No	Office	011-27666646 (Extn 309)				
	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	-	-	-			

8. PhD Course Work, University of Delhi, Jan-June 2011*(i) Unit I : Analytical Techniques for Material Characterization***9. PhD Course Work, University of Delhi, Jan-June 2015 & Sep 2016-June 2017***(i) Unit VII : Applications of Molecular Symmetry and Group Theory***10. B.Tech (IIT-Bombay), 2004-2005***Inorganic Chemistry courses (CH 102, CH 115L)***Time table of the subjects taught during the current semester**

S.No.	Subject	Days	Time	Classroom
1	Stability constants of metal complexes and their applications (Paper 101-Sec A), Sem I (July-Dec 2016), M.Sc (P)-(Groups I and II)	23	21 hrs	Lecture Hall No. 6
2	Inorganic Chemistry Practical (Paper 3102), Sem III, (July-Dec 2016), M.Sc (F)-Group II	20	80 hrs	Inorganic Lab No. 1
3	Spectral Techniques in Inorganic Chemistry (Paper 4101-Sec A), Sem IV (Jan-June 2017), M.Sc (F)	24	22 hrs	Lecture Hall No. 5
4	Inorganic Chemistry practical (Paper 4105), Sem IV, (Jan-June 2017), M.Sc (F)-Group II Inorganic Chemistry Project & Evaluation (Paper 4106), Sem IV, (Jan-June 2017), M.Sc (F)- Group II	26	104 hrs	Inorganic Lab No. 1

Research Guidance***Supervised:***

1. Mr. Indresh Kumar Pandey (Awarded, 2016)
2. Ms. Sandhya Mohan (Awarded, 2017)
3. Mr. M. Natarajan (Submitted, December 2016)

Supervision of Doctoral Thesis, under progress: 4

1. Hemlata Faujdar (2015)
2. Sarita Yadav (2014)
3. Vishaka Kaim (2016)
4. Naveen Kumar (2016)

Publications Profile

A. Research papers published in Refereed/Peer Reviewed Journals

Books

1. **Sandeep Kaur-Ghumaan**, A. Sakthivel, D. T. Masram, M. Sathiyendiran, Electronic and Magnetic Properties of Transition and Inner Transition Elements and Their Complexes, Nova Science Publishers (ISBN: 978-1-53610-914-6), April **2017**
2. Contributed to Biology a Global Approach-11th Edition by Campbell and co-authors (ISBN:9781292170435) (**2017**)

2017

31. Highly stable Electrochromic device based on Organicinorganic hybrid linked through a binding agent Solar Energy Materials and Solar Cells, Monika Jamdegni, **Sandeep Kaur-Ghumaan** and Amarjeet Kaur
Electrochimica Acta **2017**, Under revision.
30. Mononuclear Iron Carbonyl Complex [Fe(μ -bdt)(CO)₂(PTA)₂] with bulky phosphine ligand: A model for the [FeFe] hydrogenase enzyme active site with an inverted redox potential, M. Natarajan, Hemlata, S. M. Mobin, M. Stein and **Sandeep Kaur-Ghumaan***
Dalton Trans. **2017**, Under revision.
29. Synthesis and Electrocatalysis of Diiron Monothiolate Complexes: Small Molecule Mimics of the [FeFe] Hydrogenase Enzyme, M. Natarajan, I. K. Pandey and **Sandeep Kaur-Ghumaan***
ChemistrySelect **2017**, 2, 1637-1644.

2016

28. Gd(III)-DO3A-SBMPP:An Effort to Develop the MRI Contrast Agent with Enhanced Relaxivity, S. Rangaswamy, R. Varshney, A. K. Tiwari, S. K. Sethi, B. S. H. Kumar, H. Ojha, **Sandeep Kaur-Ghumaan** and A. K. Mishra
ChemistrySelect **2016**, 1, 6206-6211.
27. Diiron complexes [Fe₂(CO)₅(μ -pdt/Mebdt)(L)] containing a chelating Diphosphine ligand L=(Oxydi-2,1-phenylene)bis(diphenylphosphine): Bioinspired [FeFe] hydrogenase model complexes, I. K. Pandey, M. Natarajan, Hemlata, F. Hussain and **Sandeep Kaur-Ghumaan,***
ChemistrySelect, **2016**, 1, 5671 – 5678.

2015

26. Diiron benzenedithiolate complexes Diiron relevant to the [FeFe] hydrogenase active site, I. K. Pandey, S. M. Mobin, N. Diebel, B. Sarkar and **Sandeep Kaur-Ghumaan***
Eur. J. Inorg. Chem. **2015**, 2875-2882
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 {(μ-tppz)[Ru(bik)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 $(\text{L-H}^+)^-$ as ligands for $\{(\text{acac})_2\text{Ru}^{n+}\}$ or $\{(\text{bpy})_2\text{Ru}^{m+}\}$: investigation of mixed valency in $[\{(\text{acac})_2\text{Ru}\}_2(\mu\text{-L-H}^+)]^0$ and $[\{(\text{bpy})_2\text{Ru}\}_2(\mu\text{-L-H}^+)]^{4+}$ 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 $[\text{Ru}(\text{trpy})(\text{L})\text{Cl}]^{n+}$ 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 $\text{Ru}^{\text{II}}(\text{acac})_2(\text{L})$ (1), $[\text{Ru}^{\text{II}}(\text{bpy})_2(\text{L})](\text{ClO}_4)_2$ (2) and $[\text{Ru}^{\text{II}}(\text{bpy})(\text{L})_2](\text{ClO}_4)_2$ (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 $[(\text{acac})_2\text{Ru}^{\text{II}}(\mu\text{-bpytz})\text{Ru}^{\text{II}}(\text{acac})_2]$ and $[(\text{acac})_2\text{Ru}^{\text{II}}(\mu\text{-bpytz})\text{Ru}^{\text{III}}(\text{acac})_2](\text{ClO}_4)$ (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 $[(\text{acac})_2\text{Ru}^{\text{II}}]_3(\text{L})$ 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. $\{(\mu\text{-L})[\text{Ru}^{\text{II}}(\text{acac})_2]_2\}^n$, $n = 2+, +, 0, -, 2-$, 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

Publications in the Last one year

Books

1. **Sandeep Kaur-Ghumaan**, A. Sakthivel, D. T. Masram, M. Sathiyendiran, Electronic and Magnetic Properties of Transition and Inner Transition Elements and Their Complexes, Nova Science Publishers (ISBN: 978-1-53610-914-6), April 2017
2. Contributed to Biology a Global Approach-11th Edition by Campbell and co-authors (ISBN:9781292170435) (**2017**)

2017

31. Highly stable Electrochromic device based on Organocinorganic hybrid linked through a binding agent Solar Energy Materials and Solar Cells, Monika Jamdegni, **Sandeep Kaur-Ghumaan** and Amarjeet Kaur
Electrochimica Acta **2017**, Under revision.
30. Mononuclear Iron Carbonyl Complex $[\text{Fe}(\mu\text{-bdt})(\text{CO})_2(\text{PTA})_2]$ with bulky phosphine ligand: A model for the $[\text{FeFe}]$ hydrogenase enzyme active site with an inverted redox potential, M. Natarajan, Hemlata, S. M. Mobin, M. Stein and **Sandeep Kaur-Ghumaan***
Dalton Trans. **2017**, Under revision.

29. Synthesis and Electrocatalysis of Diiron Monothiolate Complexes: Small Molecule Mimics of the [FeFe] Hydrogenase Enzyme, M. Natarajan, I. K. Pandey and **Sandeep Kaur-Ghumaan***
ChemistrySelect **2017**, *2*, 1637-1644.

2016

28. Gd(III)-DO3A-SBMPP: An Effort to Develop the MRI Contrast Agent with Enhanced Relaxivity, S. Rangaswamy, R. Varshney, A. K. Tiwari, S. K. Sethi, B. S. H. Kumar, H. Ojha, **Sandeep Kaur-Ghumaan** and A. K. Mishra
ChemistrySelect **2016**, *1*, 6206-6211.
27. Diiron complexes [Fe₂(CO)₅(μ-pdt/Mebdt)(L)] containing a chelating Diphosphine ligand L=(Oxydi-2,1-phenylene)bis(diphenylphosphine): Bioinspired [FeFe] hydrogenase model complexes, I. K. Pandey, M. Natarajan, Hemlata, F. Hussain and **Sandeep Kaur-Ghumaan,***
ChemistrySelect, **2016**, *1*, 5671 – 5678.

Conference Organization/ Presentations (in the last 3 years)

1. **Talk: Dr Sandeep Kaur-Ghumaan**, “*Bioinspired Model Complexes Mimicking the [FeFe] Hydrogenase Enzyme Active Site: An Alternative Energy Resource*”, **Thematic Conference in Chemical Sciences (TC²S) – 2017: Sustainable Chemistry**, Department of Chemistry, IIT Ropar, May-2017
2. **Talk: Dr Sandeep Kaur-Ghumaan**, “*Biomimetic versus bioinspired hydrogen converting systems*”, 5th Symposium on Advanced Biological Inorganic Chemistry (SABIC), the Stadel, **Kolkata**, organized by IACS Jadavpur and TIFR, Mumbai, 7-11, Jan **2017**.
3. **Talk: Sarita Yadav and Dr Sandeep Kaur-Ghumaan**, “*Dinuclear silver (I) metallacycles with free functionalized thiophenyl / thiomethyl units*”, National Conference on Clean & Green Energy: The Chemical and Environmental Aspects (NCGE2017), by Department of Chemistry, Bhaskaracharya College of Applied Sciences, University of Delhi in association with UGC, February 16-17, **2017**.
4. **Talk: Hemlata and Dr Sandeep Kaur-Ghumaan**, “*Mono- and Dithiolate complexes as [FeFe] hydrogenase mimics: An alternative renewable energy source*”, National Conference on Clean & Green Energy: The Chemical and Environmental Aspects (NCGE2017), by Department of Chemistry, Bhaskaracharya College of Applied Sciences, University of Delhi in association with UGC, February 16-17, **2017**.
5. **Talk: M. Natarajan and Dr Sandeep Kaur-Ghumaan**, “*Bioinspired model complexes mimicking the [FeFe] hydrogenase enzyme active site*”, National Conference on Clean & Green Energy: The Chemical and Environmental Aspects (NCGE2017), by Department of Chemistry, Bhaskaracharya College of Applied Sciences, University of Delhi in association with UGC, February 16-17, **2017**.
6. **Talk: Dr Sandeep Kaur-Ghumaan**, “*Hydrogen Production using Iron-based Molecular Catalysts*” FUB-DU Joint Research Workshop on Supramolecular Chemistry and Nanoscale Systems, **Freie Universität Berlin, Germany** Takustr. 3, SR 31.09, June 8-10, **2016**
7. **Invited Talk: Dr Sandeep Kaur-Ghumaan**, “*Iron Thiolate Complexes as Hydrogen Converting Systems: Synthesis and Characterization by Experiment and Theory*”, **Symposium on Frontiers in Inorganic and Organometallics**, School of Chemistry, **IIT Indore**, April-**2016**

8. **Invited Talk:** M. Stein and **Dr Sandeep Kaur-Ghumaan***, “*Bioinspired versus Biomimetic Hydrogen Converting Systems: Synthesis and Characterization by Experiment and Theory*”, **Indo-German workshop on “The Advances in Materials, Reaction, and Separation Processes**, Department of Chemical Engineering, **IIT Guwahati**, February-2016
9. **Poster:** Hemlata, I. K. Pandey, M. Natarajan, **Sandeep Kaur-Ghumaan**, “*Diiron monothiolate carbonyl complex with chelating phosphine ligand: proton reduction catalyst*,” **1st National Conference on emerging trends and future challenges in chemical sciences (ETFC)**, 3-4 Feb 2016 by Department of Chemistry, **Kirori Mal College, University of Delhi**
10. **Poster:** **Dr Sandeep Kaur-Ghumaan**, “*Structural and Functional Mimics of the [FeFe] Hydrogenase Enzyme Active Site*”, **18th CRSI National Symposium in Chemistry**, Punjab University Chandigarh, February-2016
11. **Poster:** Hemlata, Indresh Pandey, M Natarajan and **Dr Sandeep Kaur-Ghumaan**, “*Diiron Monothiolate Carbonyl Complex with Chelating Diphosphine Catalyzing Hydrogen Evolution*”, **18th CRSI National Symposium in Chemistry**, Punjab University Chandigarh, February-2016
12. **Poster:** Hemlata, Indresh K. Pandey, M. Natarajan and **Dr Sandeep Kaur-Ghumaan**, “*[Fe₂(CO)₄(μ-naphthalene-2-thiolate)₂(μ-dppe)] Complex as a Proton Reduction Catalyst: Model for the [FeFe] Hydrogenase Enzyme*”, **DU-JAIST Indo-Japan Symposium on Chemistry of Functional Molecules / Materials**, Department of Chemistry, **University of Delhi**, February-2016
13. **Poster:** Hemlata, Indresh K. Pandey, M. Natarajan and **Dr Sandeep Kaur-Ghumaan**, “*Naphthalene thiolate-Bridged Complex as an [FeFe] Hydrogenase Mimic: An Alternative Renewable Energy Source*”, **International Conference on Materials Science & Technology**, Conference Centre, **University of Delhi**, March-2016
14. **Poster:** M. Natarajan, I. K. Pandey, Hemlata and **Dr Sandeep Kaur-Ghumaan**, “*[FeFe] Hydrogenase Enzyme Active Site Mimics: Absence of a Linker between the Sulphur Atoms*”, **Royal Society of Chemistry (RSC) Workshop on Chemistry for tomorrow's World**, Green Chemistry Network Centre, **University of Delhi**, December-2015
15. **Poster:** M. Natarajan, I. K. Pandey and **Dr Sandeep Kaur-Ghumaan**, “*Monothiolate Diiron Carbonyl Complexes: Bioinspired Models for the [FeFe] Hydrogenase Enzyme Active Site*”, **10th Mid-Year CRSI Symposium in Chemistry**, NIT Trichy, July-2015
16. **Poster:** I. K. Pandey, M. Natarajan, Hemlata and **Dr Sandeep Kaur-Ghumaan**, “*Dinuclear Iron Carbonyl Complexes with Monodentate Phosphine Ligands: Active Site Models of the [FeFe] Hydrogenase Active Site*”, **10th Mid-Year CRSI Symposium in Chemistry**, NIT Trichy, July-2015
17. **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

- 18. 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
- 19. 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
- 20.** Attended 2nd Indo-German Workshop on supramolecular chemistry, Department of Chemistry, **University of Delhi**, March 30, **2015**
- 21.** Attended Workshop on electronic structure, atomistic and statistical modeling in Chemistry, Materials and Life Sciences, Department of Chemistry, **University of Delhi**, October-2014
- 22. Talk:** **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
- 23. Talk:** **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
- 24. 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
- 25. Poster:** R. Sandhya, Raunak, S. K. Sethi, **Dr Sandeep Kaur-Ghumaan** and A. K. Mishra, "*Design, Synthesis and characterization of Fluorine-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
- 26. 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
- 27. 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

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 :	University of Delhi
Grant :	Rs. 2.5 lacs (2010, 2011, 2012), Rs. 2.8 lacs (2013), Rs. 2.7 lacs (2014) & Rs. 2,80,000/- (2015)
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 :	DST-SERB
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/-
5. Project Title :	Macrocycles as Catalysts, Drug/Drug Carriers and Corrosion Inhibitors
Period :	2 nd year (2016-2017)
Funding Agency :	DU-DST Purse grant
Grant :	Rs. 2,48,101/-
Awards and Distinctions	
<ol style="list-style-type: none"> CSIR Travel Grant for attending international conference in Singapore, July-2014 Max-Planck India Fellowship, from DST & Max Planck Group for Research in Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg-Germany (2012-2016) Indo-US Research Fellowship, from Indo-US Science & Technology Forum (IUSSTF) for Research in Pacific Northwest National Laboratory (2011) (Not availed) Wenner Gren Stiftelserna (Fellowship), from Wenner Gren Foundations-Sweden for Postdoctoral Research (2010) 	

5. **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. 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. **Burdwan University Gold Medal** for standing first in M.Sc examination (**2000-2002**)
12. **Dr. Panchanan Roy & Late Surendra Kr. Roy Prize** for securing highest marks in M.Sc examination (Burdwan University, **2000-2002**)
13. **Gouri Kanta Mukherjee Memorial Gold** for securing highest marks in M.Sc examination (Burdwan University, **2000-2002**)
14. **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 Jan 2014-Dec 2015
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. Development of e-learning material, Instrumental Methods and Analysis in Forensic Sciences: Conductometric measurements (PG level), Epathshala, GAD TLC, SGTB Khalsa College, DU, **2016**
2. Paper setter for Department of Chemistry, University of Delhi, Ph.D entrance exam, June **2017**
3. Advisory Committee member, 1st national Conference on Emerging trends and Future challenges in chemical sciences (**ETFC-2016**), Department of Chemistry, Kirori Mal College, University of Delhi
4. DST-Inspire Jury member at the national level, **2012, 2013, 2014, 2015 & 2016**
5. Summer internship guidance to M.Sc and B.Tech students from DU and outside DU May- July, **2015, 2016 & 2017** (Area: Hydrogenases and their model complexes)

6. Summer Internship in Laboratory Research in 2016 by Centre for Science Education and Communication, for UG students from DU Colleges, University of Delhi. Pragya Arora, B.Sc 2nd Year student, Shivaji College, was selected for working in our laboratory, from **16th June-5th July 2016** (Area: Synthesis of Supramolecular Ligands)
7. International training programme on leadership and career development for women scientists/technologists, sponsored by Department of Science and Technology Government of India, New Delhi & Indo US Science and Technology Forum, New Delhi (DST-IUSSTF), 28th August – 1st September, **2015** at **Indian Institute of Science Education and Research, Pune**
8. Invigilator for Ph.D Chemistry Entrance Examination, 23rd Aug **2014**
9. Attended Faculty Empowerment workshop on Basic ICT skills at Guru Angad Dev Teaching Learning Center of MHRD, **SGTB Khalsa College, DU** (17 and 19 Sep, **2016**)
10. Department of Chemistry, Antardhvani-2015 team member for coordinating departmental activities (organized by University of Delhi in February, **2015**)
11. Attended Orientation programme (**OR-75**) at CPDHE, University of Delhi, **2013**
12. Attended Refresher course in Chemistry by CPDHE, at Department of Chemistry, University of Delhi, June, **2015**
13. 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**
14. Paper setter for Uttarakhand State Eligibility Test for Lectureship (SET) conducted by Kumaun University, Feb-**2015**
15. Evaluator for project Udaan launched by CBSE, Feb-March **2015**
16. Reviewer of several journals