

## Faculty Details



Title	<b>Prof. (Dr.) (Ms)</b>	First Name	<b>Sandeep</b>	Last Name	<b>Kaur</b>	Photograph 
Designation	<b>Professor</b>					
Address Office	<b>Office:</b> <b>Room No. 102, Block C, Multi-Storey building (1<sup>st</sup> floor)</b> <b>Department of Chemistry</b> <b>University of Delhi (North Campus)</b> <b>Delhi - 110007</b> <b>India</b> <b>Laboratory:</b> <b>Room No. 119, Block C, Multi-Storey building (1<sup>st</sup> floor)</b>					
Residence	-					
Phone No	Office	<b>011-27666646</b>				
	Residence	-				
	Mobile	-				
Email	<a href="mailto:skaur@chemistry.du.ac.in">skaur@chemistry.du.ac.in</a> <a href="mailto:sandeepkaur.du@gmail.com">sandeepkaur.du@gmail.com</a>					
Web-Page	Webpage: <a href="http://people.du.ac.in/~skaur/">http://people.du.ac.in/~skaur/</a> Research gate: <a href="https://www.researchgate.net/profile/Sandeep-Kaur-Ghumaan">https://www.researchgate.net/profile/Sandeep-Kaur-Ghumaan</a> ORCID: <a href="https://orcid.org/0000-0002-0688-3428">https://orcid.org/0000-0002-0688-3428</a> Google Scholar: <a href="https://scholar.google.com/citations?hl=en&amp;user=XmDy_UeAAAJ">https://scholar.google.com/citations?hl=en&amp;user=XmDy_UeAAAJ</a> Vidwan: <a href="https://du.irins.org/profile/219216">https://du.irins.org/profile/219216</a> Scopus: <a href="https://www.scopus.com/authid/detail.uri?authorId=36663743400">https://www.scopus.com/authid/detail.uri?authorId=36663743400</a> <a href="http://people.samarth.edu.in/index.php/profile/user/index/DU/ce">http://people.samarth.edu.in/index.php/profile/user/index/DU/ce</a>					
<b>Educational Qualifications</b>						
Degree	Institution	Year	Details			
<b>Ph.D.</b>	<b>IIT-Bombay</b>	<b>2007</b>	Inorganic Chemistry <b>Thesis topic:</b> Mixed Valency and Valence State Distributions in Polynuclear Ruthenium Frameworks			
M.Phil. / M.Tech.	-	-	-			
<b>M.Sc</b>	<b>Burdwan University</b>	<b>2002</b>	Inorganic Chemistry			

			<b>Dissertation topic:</b> Synthesis, Characterization and Properties of Mono-, Di- and Polynuclear Complexes of Cobalt, Copper and Cadmium. A Self-Assembly Approach
<b>B.Sc (Hons.)</b>	<b>Burdwan University</b>	<b>2000</b>	<b>Chemistry</b>
Any other qualification	-	-	-

#### Career Profile

<b>1. Professor</b>	Department of Chemistry, University of Delhi, India	2023 – till date
<b>2. Associate Professor</b>	Department of Chemistry, University of Delhi, India	2020 – 2023
<b>3. Assistant Professor</b>	Department of Chemistry, University of Delhi, India	2010 – 2020
<b>4. Researcher</b>	Leibniz Institute fur Catalyses, Rostock University, Germany	2018-2019
<b>5. Max Planck-India Visiting Fellow</b>	Max Planck Institute for Dynamics of Complex Technical Systems, Germany Recipient of <i>DST-Max Planck Fellowship</i>	2013-2016
<b>6. Visiting Scientist</b>	Uppsala University, Sweden	2012
<b>7. Visiting Scientist</b>	Uppsala University, Sweden	2011
<b>8. Post-Doctoral Fellow</b>	Uppsala University, Sweden Recipient of <i>Wenner-Gren Fellowship</i> for this position	2009 – 2010
<b>9. Post-Doctoral Fellow</b>	Stanford University, USA	2007 – 2008
<b>10. Visiting Researcher</b>	Stuttgart University, Germany	2005

#### Administrative Assignments

1. Member, Admission Committee: Sub-committee Help Desk for SC/ST/OBC-NL/EWS and PwD candidates, Dept. of Chemistry, Aug 2022-Jan 2023.
2. Member, Committee for assigning duties to VC intern's, Dept. of Chemistry, Dec 2022
3. Observer, Semester examination (Nov-Dec 2022) at various examination centers of the University (Flying Squad), Univ. of Delhi, Dec 2022-Jan 2023.
4. Member, EPR Purchase/Expert committee, Univ. of Delhi/ IoE, Aug-Dec 2022.
5. Member, FRT-programme Selection Committee, Dept. of Chemistry, Oct 2022.
6. Member, Departmental Internal Complaint Committee (DICC), Dept. of Chemistry, Sep 2022-Till date.
7. Member, Gender Sensitization Committee, Dept. of Chemistry, Nov 2021.
8. Member, SCCXRD purchase/expert committee, Univ. of Delhi /IoE, Aug 2021-March 2022.
9. Member, Mental Health Committee, Dept. of Chemistry, April 2022-Till date.
10. Member, Sub-committee under NEP cell to examine all the courses and syllabi submitted by the departments, University of Delhi, June-2022-till date.

11. Member Departmental Library Committee, Department of Chemistry, Dec 2021-Till date.
12. Member M.Sc Admission Committee, Department of Chemistry, Nov-Feb 2021.
13. Member Departmental IQAC/NAAC Committee, Department of Chemistry, Nov 2021-Till date.
14. Co-opted Member, Editorial Board of the 98<sup>th</sup> Annual Report 2020-2021, University of Delhi, Aug 2021-Jan 2022.
15. Deputy Superintendent, Department of Chemistry, M.Sc Sem III Practical (Exams), Aug-Dec, 2021 and M.Sc Sem I Practical (Exams) Dec 2021-April 2022.
16. Member, Student Advisory and Grievance Committee, Department of Chemistry, June 2020-June 2021.
17. Member, Placement Committee, Department of Chemistry, Sep 2020-present.
18. Deputy Superintendent, Department of Chemistry, Conducting of M.Sc Semester I and III Theory (Exams), Oct-Dec, 2019.
19. Member Committee of Courses for PG Studies & Honors Courses Dec 2020-June 2021.
20. Member Ph.D. Selection Committee, Department of Chemistry, Sep-2019, Feb-2020, Jan-2021, Nov-Dec 2021, Nov 2022, Jan 2023.
21. Member Department Research Committee, Aug 2019-June 2021.
22. Member Purchase Committee, Department of Chemistry, April-June 2021.
23. Member Technical & Purchase Committee, Department of Chemistry, 2017-2018.
24. Member (Special Invitee), Selection committee for admission to Ph.D. programme, March 2018.
25. Member Sexual Harassment Committee, Department of Chemistry, 2017-2018.
26. Inorganic Section Convener, Department of Chemistry, 2016-2017.
27. Resident Tutor, Rajiv Gandhi Hostel for Girls, May 2011-Jan 2018.
28. Member Bill Committee, Department of Chemistry, Jan 2015-2017.
29. UV & Fluorimeter Committee Member, Department of Chemistry, Jan 2015-2017.
30. Seminar Committee Member, Department of Chemistry, June 2011-May 2012.
31. FTIR Committee Member, Department of Chemistry, 2013-2014.
32. Deputy Coordinator, Centralized Evaluation Center (CEC for M.Sc and M.Tech), Department of Chemistry, Nov-Dec, 2014.
33. Member of Committee constituted to combat Holi hooliganism, Department of Chemistry, March-2015, 2016 & 2017.
34. Member Department Grievance Committee for students, Jan 2016-2020.
35. Member Department Advisory committee for students, Aug 2018-2020.
36. Member Electro Chemical Workstation Committee for purchasing the instrument, Department of Chemistry, Sep-2016.

#### Areas of Interest / Specialization

Bioinorganic, Organometallic and Coordination Chemistry, Homogeneous Catalysis; Electrocatalysis; Designing model complexes as catalysts for proton reduction mimicking the hydrogenase active site, drug carriers, molecular sensors, other small molecule activation, etc; Developing new class of metal complexes as possible models for the active site of metalloenzymes; Designing *Self-Assembled-Monolayers-SAMs*

#### Subjects Taught

**1. M.Tech"Chemical Synthesis and Process Technologies", University of Delhi, July-Dec 2011**

**Semester I**

(i) *Course 103-Section B - Principles of Group Theory and its Applications in Spectroscopy*

**2. M.Sc (Previous), University of Delhi**

**Semester I: July-Dec, 2010 & 2011**

(i) Course 101-Inorganic Chemistry- Section B: Supramolecular and Photoinorganic Chemistry

**Semester I: July-Dec, 2012-2017, 2019, Dec-2020, Dec-2021 & Dec-2022**

(i) Course 101-Inorganic Chemistry- Section A: Stability Constants of Complexes and their Applications

**Semester I: July-Dec, 2010-2015**

(ii) Inorganic Chemistry Practical

**3. M.Sc (Previous), University of Delhi****Semester II: Jan-June, 2011-2015 & 2020, April-July 2021, April-July 2022**

(i) Course 201-Inorganic Chemistry- Section A: Group Theory and its Applications

**Semester II: Jan-June, 2011-2015**

(ii) Inorganic Chemistry Practical

**4. M.Sc (Final), University of Delhi****Semester IV: Jan-June, 2023**

(i) Course 4101 -Inorganic Chemistry- Section B: Spectral Techniques in Inorganic Chemistry- Electronic Spectroscopy, NMR, EPR and NQR Spectroscopy

**Semester IV: Jan-June, 2016**

(i) Course 4103 -Inorganic Chemistry- Section B: Analytical Techniques-Instrumentation & Applications

**Semester IV: Jan-June, 2017 & 2018**

(i) Course 4101 -Inorganic Chemistry- Section A: Spectral Techniques in Inorganic Chemistry

**Semester IV: Jan-June, 2016, 2017, 2018, 2020, 2021, 2022, 2023**

(ii) Inorganic Chemistry Practical including Project evaluation

**5. M.Sc (Final), University of Delhi, July-Dec, 2016, 2017, 2019, 2020, 2021 & 2022****Semester III**

(i) Inorganic Chemistry Practical including Project evaluation

**6. PhD Course Work, University of Delhi, Jan-June 2011**

(i) Unit: Analytical Techniques for Material Characterization

**7. PhD Course Work, University of Delhi, Jan-June 2015, Sep 2016-June 2017, Nov 2017-May 2018, June 2021-Jan 2022**

(i) Unit VII: Applications of Molecular Symmetry and Group Theory

**8. 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, M.Sc (P), (Groups IX-XII), (Dec 2021-April 2023)	Ongoing	-	Lecture Hall No. 4
2	Inorganic Chemistry Practical (Paper 3102), Sem III, M.Sc (F)- Groups I and II, (July-Dec 2022)	27	-	Lab No. 1
3	Spectral Techniques in Inorganic Chemistry- Electronic Spectroscopy, NMR, EPR and NQR Spectroscopy	Ongoing	-	Lecture Hall No. 5

	(Paper 4101-Sec B), Sem IV, M.Sc (F) (Groups I-IV), (Jan-June 2023)		
4	Inorganic Chemistry practical (Paper 4105), Sem IV, M.Sc (F)-Groups I & II (Jan – June 2023)	Ongoing	Lab No. 1
	Inorganic Chemistry Project & Evaluation (Paper 4106), Sem IV, M.Sc (F)- Groups I & II, (Jan – June 2023)		

#### Research Guidance

##### **Supervised: 8**

1. Mr. Indresh Kumar Pandey (Awarded, **2016**)
2. Ms. Sandhya Mohan (Awarded, **2017**)
3. Mr. M. Natarajan (Awarded, **2017**)
4. Ms. Sarita Yadav (Awarded, **2018**)
5. Ms. Vishakha Kaim (Awarded, **2021**)
6. Ms. Hemlata (Provisional Awarded, **2022**)
7. Ms. Tashika Agarwal (Provisional Awarded, **2022**)
8. Mr. Naveen Kumar (Provisional Awarded, **2022**)

##### **Supervision of Doctoral Thesis, under progress: 2**

9. Ms. Fatimah Ali Hussein (**2021**)
10. Ms. Ritu Rathee (**2022**)

#### Publications Profile

##### **A. Research papers published in Refereed/Peer Reviewed Journals**

##### Books/Book chapters/Other contributions

Year	Title	ISBN No.
1. 2021	<b>Author- Book Chapter</b> <b>Sandeep Kaur-Ghumaan</b> Chapter 7: Hydrogenase biomimetics as catalysts for the hydrogen oxidation reaction (HOR) In the book: A Closer look at coordination complexes Nova Science Publishers, USA	978-1-68507-199-8
2. 2021	<b>Editor</b> <b>Sandeep Kaur-Ghumaan</b> A Closer look at coordination complexes Nova Science Publishers, USA	978-1-68507-199-8
3. 2020	<b>Contributor</b> <b>Sandeep Kaur-Ghumaan</b> and D. T. Masram Analytical Chemistry, An Indian Adaptation- G. D. Christian, P. K. Dasgupta and K. A. Schug Wiley	9789388991094 (EISBN) 9788126597093 (Print ISBN)
	<b>Reviewer</b> Analytical Chemistry, 7 <sup>th</sup> Edition, International Adaptation- G. D. Christian, P. K. Dasgupta and K. A. Schug Wiley	978-1-119-77079-4
4. 2020	<b>Author-Book Chapter</b> Chapter10: My husband, son and I: The Three Musketeers	Global Young Academy (GYA) publication

		In the book: Motherhood in Science– How children change our academic careers: Experiences shared by the GYA Women in Science Working Group	
5.	<b>2020</b>	<b>Reviewer</b> Chemistry, Global Edition, 8e - Jill Kirsten Robinson, John E. McMurry and Robert C. Fay Pearson Global editions	9781292336145
6.	<b>2017</b>	<b>Author-Book</b>  Electronic and Magnetic Properties of Transition and Inner Transition Elements and Their Complexes <b>Sandeep Kaur-Ghumaan</b> , A. Sakthivel, D. T. Masram, M. Sathiyendiran Nova Science Publishers, USA	978-1-53610-914-6
7.	<b>2017</b>	<b>Contributor</b> Biology a Global Approach-11 <sup>th</sup> Edition by Campbell and co-authors Pearson Global editions	9781292170435
8.	<b>2018</b>	<b>Contributor</b> Introductory Chemistry, Global Edition, 6e - Nivaldo J. Tro Pearson Global editions	978-1292229683

### Research papers published

#### **2023**

48. [FeFe] Hydrogenase: 2-Propanethiolato-Bridged {FeFe} Systems as Electrocatalysts for Hydrogen Production in Acetonitrile-Water  
T. Agarwal and **Sandeep Kaur-Ghumaan\***  
*Eur. J. Inorg. Chem.*, **2023**, Early View (**Invited article: Celebrating 100 years of University of Delhi**)  
<https://doi.org/10.1002/ejic.202200623>, (**Impact factor = 2.551**)

#### **2022**

47. Synthesis, characterization and electrochemical studies of bis(monothiolato) {FeFe} complexes [Fe<sub>2</sub>(μ-SC<sub>6</sub>H<sub>4</sub>-OMe-*m*)<sub>2</sub>(CO)<sub>5</sub>L] (L = CO, PCy<sub>3</sub>, PPh<sub>3</sub>)  
N. Kumar and **Sandeep Kaur-Ghumaan\***  
*ChemistrySelect*, **2022**, 7(44), e202203392 (**Invited article: Celebrating 100 years of University of Delhi**)  
<https://doi.org/10.1002/slct.202203392>, (**Impact factor = 2.307**)
46. Mononuclear manganese complexes as hydrogen evolving catalysts  
V. Kaim, M. Joshi, M. Stein\* and **Sandeep Kaur-Ghumaan\***  
*Front. Chem.*, **2022**, 00, 1-13  
<https://doi.org/10.3389/fchem.2022.993085>, (**Impact factor = 5.221**)
45. 2-Mercaptobenzimidazole ligand-based models of the [FeFe] hydrogenase: Synthesis, characterization and electrochemical studies  
N. Kumar and **Sandeep Kaur- Ghumaan\***  
*J. Chem. Sci.*, **2022**, 134(2), 53 (1-12)  
<https://doi.org/10.1007/s12039-022-02027-3>, (**Impact factor = 1.573**)
44. Mechanism of diiron hydrogenase complexes controlled by nature of bridging dithiolate ligand  
M. Natarajan, N. Kumar, M. Joshi, M. Stein and **Sandeep Kaur-Ghumaan\***  
*ChemistryOpen*, **2022**, 11(1), e202100238  
<https://doi.org/10.1002/open.202100238>, (**Impact factor = 2.63**)

#### **2021**

43. Mononuclear Mn complexes featuring N,S-/N,N-donor and 1,3,5-triaza-7-phosphaadamantane ligands: synthesis and electrocatalytic properties  
V. Kaim and **Sandeep Kaur-Ghumaan\***  
New Journal of Chemistry, **2021**, 45(43), 20272-20279  
<https://doi.org/10.1039/D1NJ02104D>, (Impact factor = 3.591)
42. A Homobivalent SPECT Radioligand - Serinol Appended Methoxyphenyl Piperazine Derivative for Serotonin Receptor Imaging  
S. Rangaswamy, M. Saklani, R. Kumar, R. Mathur, A. Kaul, A. K. Tiwari, **Sandeep Kaur-Ghumaan**, A. K. Mishra and R. Varshney  
ChemistrySelect, **2021**, 6(23), 5670-5677  
<https://doi.org/10.1002/slct.202100549>, (Impact factor = 2.307)
41. Switching Site - Reactivity in Hydrogenase Model Systems by Introducing a Pendant Amine Ligand  
I. K. Pandey, T. Agarwal, S. M. Mobin, M. Stein\* and **Sandeep Kaur-Ghumaan\***  
ACS Omega, **2021**, 6(6), 4192-4203  
<https://doi.org/10.1021/acsomega.0c04901>, (Impact factor = 4.132)

## 2020

40. Macrocyclic butterfly iron cluster complexes: electrochemical investigations  
T. Agarwal and **Sandeep Kaur-Ghumaan\***  
J. Chem. Sci., **2020**, 132, 125  
<https://doi.org/10.1007/s12039-020-01830-0>, (Impact factor = 1.573)
39. Mono- and dinuclear mimics of the [FeFe] hydrogenase enzyme featuring bis (monothiolato) and 1, 3, 5-triaza-phosphaadamantane ligands  
T. Agarwal and **Sandeep Kaur-Ghumaan\***  
Inorganica Chim. Acta, **2020**, 504, 119442, (Special issue: Celebrating 60<sup>th</sup> birthday of Prof. G. K. Lahiri)  
<https://doi.org/10.1016/j.ica.2020.119442>, (Impact factor = 2.545)
38. Electrochemical aspects of restricted rhenium(I)-based supramolecular complexes with semi-rigid benzimidazolyl and rigid hydroxyquinone ligands  
S. Yadav, M. Natarajan, M. Sathiyendiran\* and **Sandeep Kaur-Ghumaan\***  
J. Chem. Sci. **2020**, 132, 1  
<https://doi.org/10.1007/s12039-019-1689-3>, (Impact factor = 1.573)
37. Structural and HER studies of diphosphine-monothiolate complexes [Fe<sub>2</sub>(CO)<sub>4</sub>(μ-naphthalene-2-thiolate)<sub>2</sub>(μ-dppe)] and [Fe<sub>2</sub>(CO)<sub>4</sub>(μ-naphthalene-2-thiolate)<sub>2</sub>(μ-DPEPhos)]  
H. Faujdar, A. Spannenberg and **Sandeep Kaur-Ghumaan\***  
Inorganica Chim. Acta, **2020**, 501, 119227  
<https://doi.org/10.1016/j.ica.2019.119227>, (Impact factor = 2.545)

## 2019

36. Manganese complexes: Hydrogen generation and oxidation  
V. Kaim and **Sandeep Kaur-Ghumaan\***  
Eur. J. Inorg. Chem., **2019**, 5041-5051 (Special issue: Artificial Enzymes)  
<https://doi.org/10.1002/ejic.201900988>, (Impact factor = 2.551)
35. Nickel(II) PE<sup>1</sup>CE<sup>2</sup>P pincer complexes (E = O, S) for electrocatalytic proton reduction  
**Sandeep Kaur-Ghumaan\***, P. Hasche, A. Spannenberg and T. Beweries\*  
Dalton Trans., **2019**, 48, 16322-16329  
<https://doi.org/10.1039/C9DT03626A>, (Impact factor = 4.569)
34. HER catalysed by iron complexes without a Fe<sub>2</sub>S<sub>2</sub> core: A review  
T. Agarwal and **Sandeep Kaur-Ghumaan\***  
Coord. Chem. Rev., **2019**, 397, 188-219  
<https://doi.org/10.1016/j.ccr.2019.06.019>, (Impact factor = 22.32)

33. Dinuclear Manganese Carbonyl Complexes: Electrocatalytic Reduction of Protons to Dihydrogen, V. Kaim, M. Natarajan and **Sandeep Kaur-Ghumaan\***  
ChemistrySelect, **2019**, 4, 1789 -1794  
<https://doi.org/10.1002/slct.201803754>, (Impact factor = 2.307)
- 2018**
32. A tetranuclear iron complex: substitution with triphenylphosphine ligand and investigation into electrocatalytic proton reduction,  
M. Natarajan, V. Kaim, N. Kumar and **Sandeep Kaur-Ghumaan\***  
J. Chem. Sci. **2018**, 130, 126 (Paper Selected for cover page)  
<https://doi.org/10.1007/s12039-018-1529-x>, (Impact factor = 1.573)
31. Intramolecular stabilization of a catalytic [FeFe]-hydrogenase mimic investigated by experiment and theory, I. K. Pandey, M. Natarajan, H. Faujdar, F. Hussain, M. Stein\* and **Sandeep Kaur-Ghumaan\***  
Dalton Trans. **2018**, 47, 4941-4949  
<https://doi.org/10.1039/C7DT04837H>, (Impact factor = 4.569)
- 2017**
30. Study of polyaniline and functionalized ZnO composite film linked through a binding agent for efficient and stable electrochromic applications  
M. Jamdegni, **Sandeep Kaur-Ghumaan** and A. Kaur\*  
Electrochimica Acta **2017**, 252, 578-588  
<https://doi.org/10.1016/j.electacta.2017.08.144>, (Impact factor = 6.901)
29. A Mononuclear Iron Carbonyl Complex [Fe( $\mu$ -bdt)(CO)<sub>2</sub>(PTA)<sub>2</sub>] with bulky phosphine ligands: 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**, 46, 10050–10056  
<https://doi.org/10.1039/C7DT01994G>, (Impact factor = 4.569)
28. 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  
<https://doi.org/10.1002/slct.201700084>, (Impact factor = 2.307)
- 2016**
27. 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  
<https://doi.org/10.1002/slct.201600814>, (Impact factor = 2.307)
26. Diiron complexes [Fe<sub>2</sub>(CO)<sub>5</sub>( $\mu$ -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  
<https://doi.org/10.1002/slct.201601216>, (Impact factor = 2.307)
- 2015**
25. Diiron benzenedithiolate complexes 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  
<https://doi.org/10.1002/ejic.201500345>, (Impact factor = 2.551)
24. 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  
<https://doi.org/10.1007/s12039-015-0809-y>, (Impact factor = 1.5736)

23. Hydrogen generation: Aromatic dithiolate-bridged metal carbonyl complexes as hydrogenase catalytic site models  
I. K. Pandey, M. Natarajan and **Sandeep Kaur-Ghumaan\***  
J. Inorg. Biochem., **2015**, 143, 88-110  
<https://doi.org/10.1016/j.jinorgbio.2014.11.006>, (Impact factor = 4.155)

#### 2014

22. [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  
<https://doi.org/10.1039/C4DT00539B>, (Impact factor = 4.569)

#### 2013

21. Microbial Hydrogen Splitting in the Presence of Oxygen  
M. Stein\* and **Sandeep Kaur-Ghumaan\***  
Biochem. Soc. Trans., **2013**, 41, 1317-1324  
<https://doi.org/10.1042/BST20130033>, (Impact factor = 6.5)
20. Effect of Cyanide Ligands on the Electronic Structure of [FeFe] Hydrogenase Active Site Model Complexes with an Azadithiolate Ligand  
Ö. F. Erdem, M. Stein, **Sandeep Kaur-Ghumaan**, E. J. Reijerse, S. Ott\* and W. Lubitz\*  
Chem. Eur. J., **2013**, 19, 14566-14572  
<https://doi.org/10.1002/chem.201302467>, (Impact factor = 5.02)

#### 2011

19. A model for the [FeFe] hydrogenase active site with a biologically relevant azadithiolate bridge: 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  
<https://doi.org/10.1002/anie.201006244>, (Impact factor = 16.82)

#### 2010

18. 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  
<https://doi.org/10.1002/anie.201002719>, (Impact factor = 16.82)

#### 2008

17. Valence State Analysis via Spectroelectrochemistry in Differently Quinonoid Bridged Diruthenium Complexes  $[(\text{acac})_2\text{Ru}(\mu\text{-L})\text{Ru}(\text{acac})_2]^{n+}$  ( $n = +2, +1, 0, -1, -2$ )  
**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  
<https://doi.org/10.1002/chem.200800976>, (Impact factor = 5.02)

#### 2007

16. 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  
<https://doi.org/10.1016/j.poly.2007.03.030>, (Impact factor = 3.052)

15. 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 Ghuman**, M. Leboschka, J. Fiedler, W. Kaim\* and G. K. Lahiri\*  
Dalton Trans., **2007**, 1934-1938  
<https://doi.org/10.1039/B617468J>, (Impact factor = 4.569)

14. 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  $\nu_{\text{CO}}$  Line Broadening  
M. Koley, B. Sarkar, **Sandeep Ghuman**, E. Bulak, J. Fiedler, W. Kaim\* and G. K. Lahiri\*  
Inorg. Chem., **2007**, 46, 3736-3742  
<https://doi.org/10.1021/ic0700102>, (Impact factor = 5.436)

## 2006

13. 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 Ghuman**, B. Sarkar, N. Chanda, M. Sieger, J. Fiedler, W. Kaim\* and G. K. Lahiri\*  
Inorg. Chem., **2006**, 45, 7955-7961  
<https://doi.org/10.1021/ic0608871>, (Impact factor = 5.436)
12. 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 Ghuman**, S. Mukherjee, S. Kar, D. Roy, Shaikh M. Mobin, R. B. Sunoj and G. K. Lahiri\*  
Eur. J. Inorg. Chem., **2006**, 4426-4441  
<https://doi.org/10.1002/ejic.200600638>, (Impact factor = 2.551)
11. 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 Ghuman**, S. Kar, S. M. Mobin, B. Harish, V. G. Puranik and G. K. Lahiri\*  
Inorg. Chem., **2006**, 45, 2413-2423  
<https://doi.org/10.1021/ic0514288>, (Impact factor = 5.436)
10. Tuning intermetallic electronic coupling in polyruthenium systems via molecular architecture.  
**Sandeep Ghuman**, and G. K. Lahiri\*  
J. Chem. Sc. **2006**, 118, 537-545  
<https://doi.org/10.1007/BF02703951>, (Impact factor = 1.573)

## 2005

9. A New Coordination Mode of the Photometric Reagent Glyoxalbis(2-hydroxyanil) (H<sub>2</sub>gbha): Bis-Bidentate Bridging by gbha<sup>2-</sup> 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 Ru<sup>III</sup>/Ru<sup>IV</sup> Intermediate  
S. Kar, B. Sarkar, **Sandeep Ghuman**, 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  
<https://doi.org/10.1021/ic050950r>, (Impact factor = 5.436)
8. 2,5-Dioxido-1,4-benzoquinonediimine (H<sub>2</sub>L<sup>2-</sup>), 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 Ghuman**, 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  
<https://doi.org/10.1002/chem.200500202>, (Impact factor = 5.02)
7. 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 Ghuman**, B. Sarkar, S. Patra, J. van Slageren, J. Fiedler, W. Kaim\* and G. K. Lahiri\*  
Inorg. Chem., **2005**, 44, 3210-3214  
<https://doi.org/10.1021/ic048309x>, (Impact factor = 5.436)

6. 3,6-Bis(2'-pyridyl)pyridazine (L) and its deprotonated form (L-H<sup>-</sup>) as ligands for {(acac)<sub>2</sub>Ru<sup>n+</sup>} or {(bpy)<sub>2</sub>Ru<sup>m+</sup>}: investigation of mixed valency in [{"(acac)<sub>2</sub>Ru}<sub>2</sub>(μ - L - H<sup>-</sup>)]<sup>0</sup> and [{"(bpy)<sub>2</sub>Ru}<sub>2</sub>(μ -L - H<sup>-</sup>)]<sup>4+</sup> 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  
<https://doi.org/10.1039/B417530A>, (Impact factor = 4.569)
5. Isomeric ruthenium terpyridine complexes [Ru(trpy)(L)Cl]<sup>n+</sup> 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  
<https://doi.org/10.1039/B500152H>, (Impact factor = 4.569)
4. Tetrazine derived mononuclear Ru<sup>II</sup>(acac)<sub>2</sub>(L) (1), [Ru<sup>II</sup>(bpy)<sub>2</sub>(L)](ClO<sub>4</sub>)<sub>2</sub> (2) and [Ru<sup>II</sup>(bpy)(L)<sub>2</sub>](ClO<sub>4</sub>)<sub>2</sub> (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  
<https://doi.org/10.1016/j.poly.2004.11.019>, (Impact factor = 3.052)

#### 2004

3. Isovalent and Mixed-Valent Diruthenium Complexes [(acac)<sub>2</sub>Ru<sup>II</sup>(μ -bpytz)Ru<sup>II</sup>(acac)<sub>2</sub>] and [(acac)<sub>2</sub>Ru<sup>II</sup>(μ -bpytz)Ru<sup>III</sup>(acac)<sub>2</sub>](ClO<sub>4</sub>) (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  
<https://doi.org/10.1021/ic049346r>, (Impact factor = 5.436)
2. The triruthenium complex [{"(acac)<sub>2</sub>Ru<sup>II</sup>}]<sub>3</sub>(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  
<https://doi.org/10.1039/B316007E>, (Impact factor = 4.569)
1. {(μ-L)[Ru<sup>II</sup>(acac)<sub>2</sub>]}<sub>2</sub><sup>n</sup>, 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  
<https://doi.org/10.1039/B315927M>, (Impact factor = 4.569)

## B. Other publications

#### 2022

12. Leadership skills in the scientific workforce  
**Sandeep Kaur-Ghumaan**  
 GYA Connections, Issue 10, June **2022**, Page 05.
11. Barriers to full participation in the open science life cycle among early career researchers  
 N. J. Gownaris, \* K. Vermeir, M.-I. Bittner, L. Gunawardena, **Sandeep Kaur-Ghumaan**, R. Lepenies, G. N. Ntsefong and I. S. Zakari  
 Data Science Journal, **2022**, 21(2), 1-15  
<http://doi.org/10.5334/dsj-2022-002>, (Impact factor = 1.185)

#### 2021

10. Impact of COVID-19 on women in the STEM workforce, Asia-Pacific

**Sandeep Kaur-Ghumaan**

The Science of Immunisation, Australian Academy of Science, **2021**

9. Mitigating losses: how scientific organizations can help address the impact of the COVID-19 pandemic on early-career researchers  
S. López-Vergès, B. Urbani, D. F. Rivas, **Sandeep Kaur-Ghumaan**, A. K. Coussens, F. Moronta-Barrios, S. Bhattarai, L. Niamir, V. Siciliano, A. Molnar, A. Weltman, M. Dhimal, S. S. Arya, K. J. Cloete, A. Taj Awan, S. Kohler, C. S. Sharma, C. R. Rojas, Y. Shimpuku, J. Ganle, M. M. Matin, J. G. Nzweundji, A. Badre and P. Carmona-Mora\*  
Humanities and Social Sciences Communications, **2021**, 8, 284  
<https://doi.org/10.1057/s41599-021-00944-1>, (Impact factor = 2.731)
8. COVID-19: Short- and long-term impacts on human society  
**Sandeep Kaur-Ghumaan**  
GYA Connections, Issue 9, June **2021**, Pages 4-5  
<https://globalyoungacademy.net/wp-content/uploads/2021/04/Connections-issue-9-web-version.pdf>
7. An Overview of Science Diplomacy in South Asia  
M. U. Ahmed, S. I. Ahmed, N. Ahmed, A. T. Awan, A. Bhadra, S. Bhattarai, M. Kumar, M. Dhimal, U. B. Shrestha, S. Abbas, **Sandeep Kaur-Ghumaan**, M. Wahajuddin  
Science & Diplomacy, Published, 17<sup>th</sup> Feb **2021**  
(**Special issue:** Future-Casting Science Diplomacy: Twelve months of COVID-19: Shaping the next era of science diplomacy)  
<https://www.sciencediplomacy.org/article/2021/overview-science-diplomacy-in-south-asia>

**2020**

6. Sustainability Transformations and Covid  
**Sandeep Kaur-Ghumaan**  
Corona Sustainability Compass  
A **science blog** by umweltbundesamt (German Environment agency (UBA)), future earth, international science council and foundation 2°  
Published, 6<sup>th</sup> Oct **2020**  
<https://www.csc-blog.org/en/sustainability-transformations-and-covid>
5. **GYA Policy Statement**  
Beyond Boundaries: A global message from young scientists on COVID-19  
P. Carmona-Mora, V. Dougnon, **Sandeep Kaur-Ghumaan**, S. Khan, R. Lepenies, B. H. Lim, S. Lopez-Verges, F. Moronta, C. Nshemereirwe, J. Nzweundji, T. Oni, W. Piyawattanametha, A. R. Jambrak, A. Rich, M. Saliba, Y. Shimpuku, V. Siciliano, U. Sommer, F. Valiente, K. Vermeir, A. Xuereb  
<https://globalyoungacademy.net/gya-covid-19-statement/>  
<https://globalyoungacademy.net/gya-covid-19-statement/#infographics>  
<https://globalyoungacademy.net/wp-content/uploads/2020/04/GYA-COVID19-Position-Statement-26.03.2020-2.pdf>
4. GYA Women in Science stay and work from home: How might we make Covid-19 lockdown work for us?  
A. Flynn, S. S. Arya, C. O. Cervone, F. F. Pires, G. Bassioni, N. Ahmed, R. Inglesi-Lotz, R. Kefi, **Sandeep Kaur-Ghumaan**  
<https://globalyoungacademy.net/wp-content/uploads/2020/05/GYA-WiS-Paper-May2020.pdf>  
<https://globalyoungacademy.net/women-in-science-and-covid-19/>
3. A global call for united actions to address climate change  
**Sandeep Kaur-Ghumaan**, N. Ahmed, B. H. Lim and S. Khan  
GYA Connections, Issue 8, June **2020**, Pages 33-34  
<https://globalyoungacademy.net/wp-content/uploads/2020/06/Connections-issue-8.pdf>
2. **Policy brief / Collaborator**  
Toward a comprehensive approach to youth empowerment for climate action  
Task force 2- Climate change and environment, Saudi Arabia, **2020**  
[https://t20saudiarabia.org.sa/en/briefs/Pages/Policy-Brief.aspx?pb=TF2\\_PB1](https://t20saudiarabia.org.sa/en/briefs/Pages/Policy-Brief.aspx?pb=TF2_PB1)

**2005**

- 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

- Mononuclear Ruthenium Phosphine Complexes: Synthesis, DFT Calculations and Electrocatalytic Hydrogen Evolution, V. Kaim, M. Natarajan, R. L. Kumawat, R. Khurana, Md. E. Ali, and **Sandeep Kaur-Ghumaan\***, *ChemistrySelect*, **2020**, Under Revision.

### Publications in the Last one year

#### Books/Book chapters/Other contributions

	Year	Title	ISBN No.
1.	2021	<b>Author</b> - Book Chapter <b>Sandeep Kaur-Ghumaan</b> Chapter 7: Hydrogenase biomimetics as catalysts for the hydrogen oxidation reaction (HOR) In the book: A Closer look at coordination complexes Nova Science Publishers, USA	978-1-68507-094-6
2.	2021	<b>Editor</b> <b>Sandeep Kaur-Ghumaan</b> A Closer look at coordination complexes Nova Science Publishers, USA	978-1-68507-199-8

#### Research papers published

##### 2023

- [FeFe] Hydrogenase: 2-Propanethiolato-Bridged {FeFe} Systems as Electrocatalysts for Hydrogen Production in Acetonitrile-Water  
T. Agarwal and **Sandeep Kaur-Ghumaan\***  
*Eur. J. Inorg. Chem.*, **2023**, Early View (Invited article: Celebrating 100 years of University of Delhi)  
<https://doi.org/10.1002/ejic.202200623>, (Impact factor = 2.551)

##### 2022

- Synthesis, characterization and electrochemical studies of bis(monothiolato) {FeFe} complexes [Fe<sub>2</sub>(μ-SC<sub>6</sub>H<sub>4</sub>-OMe-m)<sub>2</sub>(CO)<sub>5</sub>L] (L = CO, PCy<sub>3</sub>, PPh<sub>3</sub>)  
N. Kumar and **Sandeep Kaur-Ghumaan\***  
*ChemistrySelect*, **2022**, 7(44), e202203392 (Invited article: Celebrating 100 years of University of Delhi)  
<https://doi.org/10.1002/slct.202203392>, (Impact factor = 2.307)
- Mononuclear manganese complexes as hydrogen evolving catalysts  
V. Kaim, M. Joshi, M. Stein\* and **Sandeep Kaur-Ghumaan\***  
*Front. Chem.*, **2022**,  
<https://doi.org/10.3389/fchem.2022.993085> (Impact factor = 5.221)
- 2-Mercaptobenzimidazole ligand-based models of the [FeFe] hydrogenase: Synthesis, characterization and electrochemical studies  
N. Kumar and **Sandeep Kaur-Ghumaan\***  
*J. Chem. Sci.*, **2022**, 134(2), 53 (1-12)  
<https://doi.org/10.1007/s12039-022-02027-3>, (Impact factor = 1.573)
- Mechanism of diiron hydrogenase complexes controlled by nature of bridging dithiolate ligand  
M. Natarajan, N. Kumar, M. Joshi, M. Stein and **Sandeep Kaur-Ghumaan\***  
*ChemistryOpen*, **2022**, 11(1), e202100238

<https://doi.org/10.1002/open.202100238>, (Impact factor = 2.63)

## 2021

43. Mononuclear Mn complexes featuring N,S-/N,N-donor and 1,3,5-triaza-7-phosphaadamantane ligands: synthesis and electrocatalytic properties  
V. Kaim and **Sandeep Kaur-Ghumaan\***  
*New Journal of Chemistry*, **2021**, 45(43), 20272-20279  
<https://doi.org/10.1039/D1NJ02104D>, (Impact factor = 3.591)
42. A Homobivalent SPECT Radioligand - Serinol Appended Methoxyphenyl Piperazine Derivative for Serotonin Receptor Imaging  
S. Rangaswamy, M. Saklani, R. Kumar, R. Mathur, A. Kaul, A. K. Tiwari, **Sandeep Kaur-Ghumaan**, A. K. Mishra and R. Varshney  
*ChemistrySelect*, **2021**, 6(23), 5670-5677  
<https://doi.org/10.1002/slct.202100549>, (Impact factor = 2.307)
41. Switching Site - Reactivity in Hydrogenase Model Systems by Introducing a Pendant Amine Ligand  
I. K. Pandey, T. Agarwal, S. M. Mobin, M. Stein\* and **Sandeep Kaur-Ghumaan\***  
*ACS Omega*, **2021**, 6(6), 4192-4203  
<https://doi.org/10.1021/acsomega.0c04901>, (Impact factor = 4.132)

Invited Lectures/resource person/Conference Organization/ Conference Presentations (in the last 3 years)

### Conference Organization:

Details	Place	Period		Sponsoring/Organising Agency
		From	To	
Member of the Organizing Committee, Science Diplomacy in South Asia, Online Workshop (21 Nov to 13 Dec 2020)	Online	Aug 2020	Dec 2020	Science Diplomacy in South Asia Working Group (GYA)
Member-Programme Organizing and Local organizing Committee, GYA AGM and International Conference of Young Scientists, June 2020	Online	May 2019	June 2020	Global Young Academy (GYA)
Member of the National Organizing Committee (NOC) in 19 <sup>th</sup> International Conference on Modern Trends in Inorganic Chemistry (MTIC)-2021 (organized in Dec 2022 due to COVID-19) (15-17 Dec 2022)	BHU, Varanasi	Jan 2021	Dec 2022	Department of Chemistry Institute of Science Banaras Hindu University (BHU), Varanasi 221005, India

### Conference Presentations:

## 2023

1. **Poster – F. A. Hussein (presenter)**, Ritu and **Dr. Sandeep Kaur-Ghumaan**, “*Schiff Base Ligand Based Complexes as Electro catalysts for Proton Reduction*”, 30<sup>th</sup> CRSI National Symposium in Chemistry & 16<sup>th</sup> CRSI Royal Society of Chemistry, Feb 2023.

## 2022

2. **Resource Person / Invited Talk – Dr. Sandeep Kaur-Ghumaan**, “*Lessons From Nature in Designing The Catalyst*”, Refresher Course on Chemistry for University and College teachers, Centre for Professional Development in Higher Education (CPDHE), UGC-HRDC, University of Delhi is conducting an online

Refresher Course on Chemistry for University and College teachers scheduled to be held from 12-25 July 2022.

3. **Poster** – M. Natarajan, N. Kumar, **M. Joshi (presenter)**, M. Stein and **Dr. Sandeep Kaur-Ghumaan**, “*Effect of Different Bridging Dithiolate Ligands on Hydrogen Evolution Mechanism: A Computational Study*”, WATOC 2020 (2022) - 12<sup>th</sup> Triennial Congress of the World Association of Theoretical and Computational Chemists, Vancouver, Canada, 3-8 July 2022.

#### 2021

4. **Poster (Online)** – N. Kumar and **Dr. Sandeep Kaur-Ghumaan**, “*Bioinspired models of the [FeFe] hydrogenase enzyme using 2-mercaptobenzimidazole ligand: Synthesis and electrocatalytic proton reduction*”, Frontiers in Organometallics and Catalysis (FOMC), Malaviya National Institute of Technology, Jaipur, Rajasthan, **India** (20-22 Jan 2021).
5. **Poster/Talk (Online)** – T. Agarwal and **Dr. Sandeep Kaur-Ghumaan**, “*Switching Site-Reactivity in Hydrogenase Model Systems by Introducing a Pendant Amine Ligand*”, Frontiers in Organometallics and Catalysis (FOMC), Malaviya National Institute of Technology, Jaipur, Rajasthan, **India** (20-22 Jan 2021).

#### 2020

6. **Poster (Online)** – N. Kumar and **Dr. Sandeep Kaur-Ghumaan**, “*2-Mercaptobenzimidazole ligand-based models of the [FeFe] hydrogenase: Synthesis, characterization and electrochemical studies*”, National Convention of Chemistry Teachers 2020 (NCCT 2020) and International Webcon on Recent Advances in Chemistry Education and Chemical Research, Association of Chemistry Teachers (ACT), c/o HBSCE (TIFR), Mumbai, **India**, 29 Nov-1 Dec - 2020.
7. **Poster (Online)** – N. Kumar and **Dr. Sandeep Kaur-Ghumaan**, “*Bioinspired models of the [FeFe] hydrogenase enzyme using 2-mercaptobenzimidazole ligand: Synthesis and electrocatalytic proton reduction*”, 57<sup>th</sup> Annual Convention of Chemists & International Conference on Recent Trends in Chemical Sciences (RTCS 2020, online), Indian Chemical Society, Kolkata, 26-29 Dec 2020.
8. **Poster (Online)** – N. Kumar and **Dr. Sandeep Kaur-Ghumaan**, “*2-Mercaptobenzimidazole ligand-based models of the [FeFe] hydrogenase: Synthesis, characterization and electrochemical studies*”, online Conference on Catalysis for Sustainable Development (CATSCHOL-2020), Catalysis Society of India, Mumbai Chapter, 19-20 Dec 2020.

#### Awards and Distinctions

1. **CSIR Travel Grant** for attending international conference in Singapore, July-2014
2. **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)
3. **Indo-US Research Fellowship**, from Indo-US Science & Technology Forum (IUSSTF) for Research in Pacific Northwest National Laboratory (2011) (**Not availed**)
4. **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 **17<sup>th</sup> Research Scholars Meet** (11<sup>th</sup>-12<sup>th</sup> 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 **229<sup>th</sup> 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)**

#### Research Projects (Major Grants/Research Collaboration)

1. "Design and Development of Versatile Hydrophilic Ligand-based Iron Complexes as Hydrogen Evolution Reaction (HER) catalysts," **funded by Faculty Research Programme Grant- Institution of Eminence (IoE), University of Delhi, 2022-2023**
2. "Rational design of bifunctional catalysts for electroreduction of both protons and carbon dioxide to useful chemical fuels" **funded by Faculty Research Programme Grant- Institution of Eminence (IoE), University of Delhi, 2021-2022**
3. "Bioinspired Systems with Improved Catalyst Stability as Alternative Renewable Energy Resources" **funded by Faculty Research Programme Grant- Institution of Eminence (IoE), University of Delhi, 2021**
4. "Design, Synthesis and Characterization of Earth-Abundant Metal Complexes (Co, Fe, Ni) as Electrocatalysts for Proton Reduction," **funded by CSIR, New Delhi, 2018-2022**
5. "Mixed Valence Aspects of Mono- and Dinuclear  $\eta^6$ -Arene Ruthenium Complexes with Oxygen- and Nitrogen- Based Chelating Ligands: Synthesis and Characterization," **funded by CSIR, New Delhi, 2015-2018**
6. "Bioinspired Model Complexes Mimicking the Active Site of the [Fe]-only Hydrogenase Enzymes," **funded by DST-SERB, 2012-2015**
7. "Macrocycles as Catalysts, Drug/Drug Carriers and Corrosion Inhibitors," **funded by DU-DST Purse Grant, 2014-2015 & 2016-2017**
8. "Design, Synthesis and Functional Studies on Model Complexes of the Mononuclear [Fe] Hydrogenase Active Site,"  
 "Bioinorganic Enzyme Active Site Models of Energy Relevance -Synthesis, Characterization and their Catalytic Studies,"  
 "Catalytic Studies with Model Complexes Mimicking the Iron Hydrogenases,"  
 "Mononuclear and Dinuclear Iron Complexes Mimicking Hydrogenase Enzymes,"  
 "Design and Development of Earth-Abundant Metal Complexes (Co, Fe and Ni) as Catalysts for Electrochemically Cycling Hydrogen,"  
 "Design and Development of Iron Carbonyl Complexes as Catalysts for Electrochemically and Photochemically Cycling Hydrogen,"  
**funded by University of Delhi, Seed Grant-2010 & University of Delhi, R&D Grant, 2010, 2011, 2012, 2013, 2014, 2015.**



#### Association With Professional Bodies

##### Memberships:

1. Member, Global Young Academy (2019-2024)
2. Organization for Women in Science for the Developing World (OWSD) member (2021-Present)
3. Materials Research Society of India, Bangalore Life member (2014)
4. Catalysis Society of India, Chennai Life member (2014)
5. Indian Council of Chemists, Agra Life member (2014)
6. American Chemical Society member since 2004-present
7. Royal Society of Chemistry member since 2013-present
8. International Union for Pure and Applied Chemistry (IUPAC) member since Jan 2014-Dec 2015
9. Chemical Research Society of India (CRSI) Life member (2013)
10. Indian Science Congress Association, Kolkata Life member (2014)
11. Indian Chemical Society, Kolkata Life Member (2014)
12. Indian Society of Chemists and Biologists Life Member (2014)

#### Other Activities

1. Guest Editor, Joint special collection of European Journal of Organic Chemistry (EurJOC), European Journal of Inorganic Chemistry (EurJIC), and ChemistrySelect to highlight the work done by the faculty members of the Dept. of Chemistry, alumni of the Dept. and faculty members of Chemistry Dept. of various colleges of DU - Celebrating 100 years of DU, Chemistry Europe Journals, Wiley, Germany, **2022- 2023**.
2. **Lindau Alumni peer reviewer** in the selection process of Lindau Alumni, young scientists, and young economists for the interdisciplinary Next Gen Science presentations participation in the 71<sup>st</sup> Lindau Nobel Laureate Meeting, in Chemistry, June –July **2022**.
3. **Lindau Alumni peer reviewer** in the selection process of Lindau Alumni, young scientists, and young economists for the interdisciplinary Next Gen Science presentations during the Online Science Days 2020, Council for the Lindau Nobel Laureate Meetings, Lindau, June - July **2020**.
4. Lindau Alumni peer reviewer (Dec **2021**) for pre-evaluation of candidates for participation in the 71<sup>st</sup> Lindau Nobel Laureate Meeting, June –July **2022** in Chemistry.
5. Group Leader, Project: Capitalism after Corona, 48-hour Online Sciathon, Lindau Nobel Laureates Meeting, June - **2020**. <https://sciathon.org/project/group-kaur-ghumaan/>; <https://sciathon.org/projects/>
6. Online Faculty Development Programme on "Research Methodology," Teaching Learning Centre, Ramanujan College, Univ. of Delhi (PMMMNMTT of MHRD), from 1-15 Oct **2020**.
7. Online Faculty Development Program on the Development of Teacher's e-kit and MOOCs in four quadrant format of e-content, Guru Angad Dev Teaching Learning Centre, SGTB Khalsa College, Univ. of Delhi (PMMMNMTT of MHRD), 12-20 Sep **2020**.

8. Completed Online Refresher Course in Chemistry for Higher Education, conducted by Sri Guru Tegh Bahadur Khalsa College, University of Delhi, **Feb 2020**.
9. Science Diplomacy in South Asia, Online Workshop, organized by Science Diplomacy in South Asia Working Group (GYA), Nov - Dec **2020**.
10. GYA's e-conference, Annual General Meeting of the Global Young Academy, June-July **2020 & 2021**.
11. GYA's Virtual International Conference of Young Scientists, Heal the Earth: Sustainable Development Goals in a Changing World, June - July **2020** and GYA's Virtual International Conference of Young Scientists, June **2021**.
12. Attended Online Science Days of the Lindau Nobel Laureate Meetings, June - July **2020**.
13. Attended UGC-sponsored workshop on MOOCs, E-content development, and open educational resources at CPDHE, University of Delhi, 12-18 July **2019**.
14. Attended UGC-sponsored workshop on MOOCs, E-learning and ICT at CPDHE, University of Delhi, 15-21 June **2019**.
15. Attended UGC-sponsored workshop on Research Methodology at CPDHE, University of Delhi, 17-23, Sep **2019**.
16. GYA Science Education Outreach at Francke Foundations Halle, "*The Science of Light*", (<https://globalyoungacademy.net/gya-science-education-outreach-at-francke-foundations-halle/>), April **2019**.
17. **2<sup>nd</sup> prize Poster presentation:** **V. Kaim**, M. Natarajan and S. Kaur-Ghumaan\*, Electrochemical Proton Reduction Catalysed by Thiolate-Bridged Manganese Carbonyl Complexes, National Conference on Chemical Sciences: Opportunities & Challenges March-**2018**, Organized by Dept. of Chemistry, ST. STEPHEN'S COLLEGE, Univ. of Delhi, India.
18. Development of e-learning material, Instrumental Methods and Analysis in Forensic Sciences: Conductometric measurements (PG level), Epathshala, GAD TLC, SGTB Khalsa College, DU, **2016**.
19. Paper setter for Department of Chemistry, University of Delhi, Ph.D entrance exam, June **2017**.
20. 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.
21. DST-Inspire Jury member at the national level, **2012, 2013, 2014, 2015 & 2016**.
22. 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).
23. Summer Internship in Laboratory Research by Centre for Science Education and Communication, for UG students from DU Colleges, University of Delhi. Pragya Arora, B.Sc 2<sup>nd</sup> Year student, Shivaji

College, was selected for working in our laboratory, from **June-July 2016** (Area: Synthesis of Supramolecular Ligands).

24. 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), Aug – Sep **2015** at **Indian Institute of Science Education and Research, Pune**.
25. Invigilator for Ph.D Chemistry Entrance Examination, Aug **2014**.
26. 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**).
27. Department of Chemistry, Antardhvani-2015 team member for coordinating departmental activities (organized by University of Delhi in Feb **2015**).
28. Attended Orientation programme (**OR-75**) at CPDHE, University of Delhi, **2013**.
29. Attended Refresher course in Chemistry by CPDHE, at Department of Chemistry, University of Delhi, June **2015**.
30. 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**.
31. Paper setter for Uttarakhand State Eligibility Test for Lectureship (SET) conducted by Kumaun University, Feb-**2015**.
32. Evaluator for project Udaan launched by CBSE, Feb-March **2015**.
33. Reviewer, for Book on Inorganic Chemistry (Tata McGraw Hill Education Pvt. Ltd).
34. Reviewer of several journals.

**Dr. Sandeep Kaur**

Delhi, 06. 07. 2023

I declare that the above particulars are correct to the best of my knowledge.