




## Faculty Details proforma for DU Web-site

Title	Prof./Dr./Mr./Ms./Mrs.	First Name	Surendra	Last Name	Singh	Photograph
Designation		Assistant Professor				
Address		Department of Chemistry University of Delhi				
Phone No						
Office						
Residence						
Mobile		+919582554189				
Email		Ssingh1@chemistry.du.ac.in				
Web-Page						
<b>Educational Qualifications</b>						
Degree		Institution			Year	
Ph.D.		<b>Central Salt &amp; Marine Chemical Institute, Bhavnagar, Gujarat</b> (Title: Synthesis and Characterization of Chiral Salen Transition Metal Complexes as Enantioselective Epoxidation Catalyst)			2006	
M.Phil. / M.Tech.						
PG		S. D. Govt. College, Beawer, Rajasthan (M. D. S. University Ajmer, Rajasthan)			2000	
UG		S. D. Govt. College, Beawer, Rajasthan (M. D. S. University Ajmer, Rajasthan)			1998	
Any other qualification						
<b>Career Profile</b>						
1. Assistant Professor		University of Delhi			10 <sup>th</sup> March 2010 to till date	
2. Postdoctoral Researcher (IRCSET Fellow)		Centre for Synthesis and Chemical Biology University College Dublin, Ireland			Sept, 2006 to Jan, 2010	
3. Ph.D		Central Salt and Marine Chemical Research Institute (CSMCRI), Bhavnagar, Gujarat,			May, 2002 to Sept, 2006	
<b>Administrative Assignments</b>						
1. Deputy Coordinator for Central Evaluation System of Department of Chemistry, Sem. I & III, 2010						
2. Deputy Coordinator for Central Evaluation System of Department of Chemistry, Sem. II & IV, 2015						
<b>Areas of Interest / Specialization</b>						
1. Organic Chemistry Specialization (Development of catalyst for industrially useful organic transformations, Asymmetric catalysis, Total synthesis of biological important molecules, Synthetic methodology development)						
<b>Subjects Taught</b>						

1. M. Sc.
  - (I) Organic Stereochemistry
  - (II) Methods in Organic Synthesis
  - (III) Spectroscopy of Organic Compounds
2. Ph. D. Course work
  - (I) UNIT-XXVI: Metal Catalyzed Cross coupling reactions
  - (II) UNIT-XXXI: Organic Name Reactions

#### Research Guidance

List against each head (If applicable)

1. Supervision of awarded Doctoral Thesis
  - (i) Dr. Mohd. Rashid
2. Supervision of Doctoral Thesis, under progress
  - (i) Mr. Parmod Kumar
  - (ii) Mr. Manmohan Singh Chauhan (Thesis Submitted, June 2015)
  - (iii) Mrs. Geeta Devi Yadav
  - (iv) Mr. Ashish Dixit
  - (v) Ms. Sweta Demoga
3. Supervision of awarded M.Phil dissertations Nil
4. Supervision of M.Phil dissertations, under progress Nil

#### Publications Profile

List against each head (If applicable) (as Illustrated with examples)

##### 1. Books/Monographs (Authored/Edited) Nil

##### 2. Research papers published in Refereed/Peer Reviewed Journals

1. Synthesis of MacMillan catalyst modified with ionic liquid as a recoverable catalyst for asymmetric Diels–Alder reaction M. S. Chauhan, P. Kumar and **S. Singh**<sup>\*</sup> *RSC Adv.*, **2015**, 5, 52636
2. Asymmetric reduction of ketones catalyzed by a, a-diphenyl-(L)-prolinol modified with imidazolium ionic liquid and BH<sub>3</sub>·SMe<sub>2</sub> as a recoverable catalyst, M. S. Chauhan, **S. Singh**<sup>\*</sup> *Journal of Molecular Catalysis A: Chemical* **2015**, 398, 184
3. Synthesis, crystal structure and catalytic activity of the guanidinium cation directed nickel(II)-containing open Wells–Dawson 19-tungstodiarsonate(III)  $[\{Ni(H_2O)_4\}_2\{Na(H_2O)\}-As_2W_{19}O_{67}(H_2O)]^{9-}$  M. Saini, R. Gupta, **S. Singh** and F. Hussain<sup>\*</sup>, *RSC Adv.*, **2015**, 5, 25273
4. Chiral Mn<sup>III</sup>–salalen and –salan Complexes Derived from (S)-Pyrrolidin-2-ylmethanamine and Their Catalytic Activity in the Asymmetric Strecker Reaction P. Kumar, S. Saravanan, N. H. Khan, F. Hussain, **S. Singh**<sup>\*</sup>, *Eur. J. Inorg. Chem.*, **2014**, 5077
5. Lanthano-phosphotungstates: A water soluble and reusable catalyst for oxidation of alcohols using H<sub>2</sub>O<sub>2</sub> as an oxidant M. Saini, R. Gupta, S. Parbhakar, **S. Singh**<sup>\*</sup> and F. Hussain<sup>\*</sup>, *RSC Adv.*, **2014**, 4, 38446
6. N-Fluorobenzenaminium tetrafluoroborate generate in situ by aniline and Selectfluor as a reusable catalyst for ring opening of epoxides with amines under microwave irradiation M. S.

- Chauhan, G. D. Yadav, F. Hussain, **S. Singh**<sup>\*</sup>, *Catal. Sci. Technol.*, **2014**, 3945
7. Ring opening of epoxides with alcohols using Fe(Cp)<sub>2</sub>BF<sub>4</sub> as catalyst. G. D. Yadav and **S. Singh**<sup>\*</sup> *Tetrahedron Lett.* **2014**, 55, 3979.
  8. Fe(Cp)<sub>2</sub>BF<sub>4</sub>: An efficient Lewis acid catalyst for the aminolysis of epoxides, G. D. Yadav, M. S. Chauhan and **S. Singh**<sup>\*</sup>. *Synthesis*, **2014**, 629
  9. Synthesis of rhenium-based M<sub>2</sub>LL $\phi$ -type supramolecular coordination complexes from flexible ligands, B. Shankar, P. Elumalai, P. J. Jackmil, P. Kumar, **S. Singh**, M. Sathiyendiran. *Journal of Organometallic Chemistry* **2013**, 743, 109
  10. Asymmetric Synthesis of (+)-Tanikolide and the  $\beta$ -Methyl-Substituted Analogues of (+)-Tanikolide and (-)-Malyngolide, R. Doran, L. Duggan, **S. Singh**, C. D. Duffy, and P. J. Guiry<sup>\*</sup>, *Eur. J. Org. Chem* **2011**, 7097
  11. A Short and Efficient Asymmetric Synthesis of (-)-Frontalin, (-)-*exo*-Isobrevicomin and volatile component of Beer-Aroma. **S. Singh**, Patrick. J. Guiry<sup>\*</sup>, *Tetrahedron* **2010**, 66, 5701
  12. Microwave assisted synthesis of substituted Tetrahydropyran catalysed by ZrCl<sub>4</sub> and Application in Asymmetric synthesis of (-)-*endo*-brevicomin and (+)-*exo*-brevicomin. **S. Singh** and P. J. Guiry<sup>\*</sup>, *J. Org. Chem.* **2009**, 74, 5758
  13. A Facile Synthesis of both Enantiomers of 6-Acetoxy-5-hexadecanolide, a Major Component of Mosquito Oviposition Attractant Pheromones. **S. Singh** and P. J. Guiry<sup>\*</sup>, *Eur. J. Org. Chem* **2009**, 1896
  14. A Novel, Chemoselective and Efficient Microwave-Assisted Deprotection of Silyl Ethers with Selectfluor. S. T. Ali Shah. S. Singh, and P. J. Guiry<sup>\*</sup>, *J. Org. Chem.* **2009**, 74, 2179
  15. ZrCl<sub>4</sub> as An Efficient Catalyst for a Novel One-Pot Protection/ deprotection Synthetic Methodology. S. Singh, C. D. Duffy, S. T. Ali Shah and P. J. Guiry<sup>\*</sup>, *J. Org. Chem.* **2008**, 73, 6429
  16. Fe(Cp)<sub>2</sub>PF<sub>6</sub> Catalyzed Efficient Strecker Reaction of Ketones and Aldehydes under Solvent free Condition. N. H. Khan<sup>\*</sup>, S. Agrawal, R. I. Kureshy, S. H. R. Abdi, **S. Singh**, E. Suresh, and R. V. Jasra., *Tetrahedron Lett.* **2008**, 49, 640
  17. Chiral Recyclable Dimeric and Polymeric Cr(III) Salen Complexes Catalyzed Aminolytic Kinetic Resolution of *trans*-aromatic Epoxides under Microwave Irradiation. R. I. Kureshy<sup>\*</sup>, K. J. Pratap, **S. Singh**, S. Agrawal, N. H. Khan, S. H. R. Abdi and R. V. Jasra, *Chirality* **2007**, 19, 809
  18. Efficient Method for Ring Opening of Epoxides with Amines by NaY Zeolite under Solvent-Free Conditions. R. I. Kureshy<sup>\*</sup>, **S. Singh**, N. H. Khan, S. H. R. Abdi, E. Suresh and R. V. Jasra, *J. Mol. Catal. A: Chemical* **2007**, 264, 162
  19. Fe(Cp)<sub>2</sub>PF<sub>6</sub>: An Efficient Catalyst for Cyanosilylation of Carbonyl Compounds under Solvent Free Condition. N. H. Khan<sup>\*</sup>, S. Agrawal, R. I. Kureshy, S. H. R. Abdi, **S. Singh** and R. V. Jasra, *Journal of Organometallic Chemistry* **2007**, 692, 4361
  20. Environment Friendly Protocol for Enantioselective Epoxidation of Non-functionalized Alkenes Catalyzed by Recyclable Homochiral Dimeric Mn(III)salen Complexes with Hydrogen peroxide and UHP Adduct as Oxidants., R. I. Kureshy<sup>\*</sup>, **S. Singh**, N. H. Khan, S. H. R. Abdi, I. Ahmad, A. Bhatt and R. V. Jasra, *Catalysis Letters* **2006**, 107, 127
  21. Enantioselective Aminolytic Kinetic Resolution (AKR) of Epoxides Catalyzed by Recyclable Polymeric Cr(III) Salen Complexes. R. I. Kureshy<sup>\*</sup>, **S. Singh**, N. H. Khan, S. H. R. Abdi, S. Agrawal and R. V. Jasra, *Tetrahedron:Asymmetry* **2006**, 17, 1638
  22. Microwave-assisted Asymmetric Ring opening of *Meso* Epoxides with Aromatic amines Catalyzed by a Ti-S(-)-BINOL Complex. R. I. Kureshy<sup>\*</sup>, **S. Singh**, N. H. Khan, S. H. R. Abdi, Santosh Agrawal, V. J. Mayani and R. V. Jasra, *Tetrahedron Lett.* **2006**, 47, 5277
  23. Facile Enantioselective Ring opening Reaction of *Meso* Epoxides with Anilines using Ti-(S)-(-)-BINOL Complex as Catalyst. R. I. Kureshy<sup>\*</sup>, **S. Singh**, N. H. Khan, S. H. R. Abdi, E. Suresh and R. V. Jasra, *Eur. J. Org. Chem.* **2005**, 1303
  24. Improved Catalytic Activity of Homochiral Dimeric Cobalt Salen Complex in Hydrolytic Kinetic

- Resolution of Terminal Racemic Epoxides. R. I. Kureshy\*, **S. Singh**, N. H. Khan, S. H. R. Abdi, I. Ahmad, A. Bhatt and R. V. Jasra, *Chirality*, **2005**, 17, 590
25. Immobilization of Chiral Mn(III) Salen on Pyridine N-Oxide Modified MCM-41 as Effective Catalysts for Epoxidation of nonfunctionalized Alkenes. R. I. Kureshy\*, I. Ahmad, N. H. Khan, S. H. R. Abdi, **S. Singh** and R. V. Jasra, *Journal of Catalysis* **2005**, 235, 24
  26. Enantioselective Epoxidation of Non-Functionalised Alkenes Catalysed by Recyclable new Homo Chiral Dimeric Mn(III) Salen complexes. R. I. Kureshy\*, N. H. Khan, S. H. R. Abdi, **S. Singh**, I. Ahmad, R. V. Jasra and A. P. Vyas, *Journal of Catalysis* **2004**, 224, 22.
  27. Catalytic Asymmetric Epoxidation of non-functionalised Alkenes using Polymeric Mn(III) Salen as Catalysts and NaOCl as Oxidant. R. I. Kureshy\*, N. H. Khan, S. H. R. Abdi, **S. Singh**, I. Ahmad and R. V. Jasra. *Journal of Molecular Catalysis A: Chemical* **2004**, 218, 141
  28. Dicationic chiral Mn(III) Salen complex Exchanged in the inter-layers of Montmorillonite clay: A Heterogeneous Enantioselective catalysts for Epoxidation of nonfunctionalised Alkenes. R. I. Kureshy\*, N. H. Khan, S. H. R. Abdi, I. Ahmad, **S. Singh** and R. V. Jasra. *Journal of Catalysis* **2004**, 221, 234
  29. Chiral Mn (III) Salen Complex-catalyzed Enantioselective Epoxidation of non-functionalized Alkenes using urea-H<sub>2</sub>O<sub>2</sub> Adduct as Oxidant. R. I. Kureshy\*, N. H. Khan, S. H. R. Abdi, **S. Singh**, I. Ahmad, R. S. Shukla and R. V. Jasra, *Journal of Catalysis* **2003**, 219, 1
  30. Enantioselective Epoxidation of non-functionalized Alkenes Catalysed by Dimeric Homochiral Mn(III) Salen complex using Oxone as Oxidant. R. I. Kureshy\*, N. H. Khan, S. H. R. Abdi, I. Ahmad, **S. Singh** and R. V. Jasra, *Journal of Molecular Catalysis A: Chemical* **2003**, 203, 69
  31. Immobilization of Dicationic Mn(III) Salen in the interlayers of Montmorillonite clay for Enantioselective Epoxidation of non-functionalised Alkenes. R. I. Kureshy\*, N. H. Khan, S. H. R. Abdi, I. Ahmad, **S. Singh** and R. V. Jasra, *Catalysis Letters* **2003**, 91, 207.

#### Conference Organization/ Presentations (in the last three years)

List against each head (If applicable)

**Organization of a Conference: Nil**

#### **Participation as Paper/Poster Presenter**

1. Poster presentation was done in 1<sup>st</sup> Indo-German Conference on Catalysis for the paper entitled, "Production of highly enantioselective epoxides and diols using Co(III) Salen complexes via hydro-kinetic resolution of racemic epoxides" held at the IICT Hyderabad during February 6-8, 2003. R. I. Kureshy\*, N. H. Khan, S. H. R. Abdi, **S. Singh**, R. V. Jasra,
2. Best Paper presentation in TAGRSM-2003 organised by Indian Chemical society **Vadodra Chapter on 23<sup>rd</sup> February 2003** entitled, "Homochiral Dimeric Mn(III) Salen complex-catalysed enantioselective epoxidation of non-functionalised alkenes using NaOCl as oxidant. R. I. Kureshy\*, N. H. Khan, S. H. R. Abdi, **S. Singh**, and R. V. Jasra.
3. A poster entitled, "Dimeric Mn(III) Salen Complex as a catalyst for asymmetric epoxidation of non-functionalised alkenes using H<sub>2</sub>O<sub>2</sub> as oxidant" has been presented in Workshop on Advances in Catalysis held in Loyala College Chennai during January 6-7, 2004. I. Ahmad, R. I. Kureshy\*, N. H. Khan, **S. Singh**, S. H. R. Abdi, R. V. Jasra.
4. A poster entitled, "Catalytic asymmetric epoxidation of non-functionalised alkenes using polymeric Mn(III) salen as catalysts and NaOCl as oxidant" is presented in 10<sup>th</sup> Symposium on Modern Trends in Inorganic Chemistry held at IIT Mumbai during 15-17 Dec. 2003. N. H. Khan\*, R. I. Kureshy, S. H. R. Abdi, **S. Singh**, R. V. Jasra
5. A paper presented First Junior NOST Symposium Organized by NCL, Pune During 8-10 November 2004 "Enantioselective epoxidation of non-functionalised alkenes using recyclable homochiral dimeric Mn(III)

- Salen complexes as catalysts with hydrogen peroxide and UHP adduct as oxidants” R. I. Kureshy\*, **S. Singh**, N. H. Khan, S. H. R. Abdi, R. V. Jasra.
6. A poster entitled “A Facile Catalytic Enantioselective Synthesis of syn-β - Amino alcohols by Ring opening of meso Aromatic epoxides with Aromatic amines by Ti(BINOL) Complexes” is presented in 17 National Symposium on catalysis Jan 18-20, 2005 held at CSMCRI Bhavnagar. R. I. Kureshy\*, **S. Singh**, N. H. Khan, S. H. R. Abdi, A. Ali and R. V. Jasra
  7. A poster entitled “Synthesis of Polymeric Cr(III) Salen complexes for Asymmetric Kinetic resolution of trans epoxides with anilines” is presented in 11<sup>th</sup> Symposium on Modern Trends in Inorganic Chemistry (MTIC-XI) held at IIT Delhi Dec.8-10, 2005. R. I. Kureshy\*, **S. Singh**, N. H. Khan, S. H. R. Abdi, A. Ali and R. V. Jasra
  8. A poster entitled “A Novel one-pot Protection/deprotection synthetic methodologies catalysed by ZrCl<sub>4</sub> for the synthesis of key intermediates of Lipoxin analogues and mosquito attractant pheromones” presented in ESF-COST High-Level Research Conference Natural Products Chemistry, Biology and Medicine held at Acquafredda di Maratea, Italy 18-23 May 2008. **S. Singh** and Prof. Pat Guiry\*
  9. A poster entitled “Selectfluor as a reusable catalyst chemo-and regio-selective ring opening of epoxides with amines under microwave irradiations” presented in 15<sup>th</sup> CRSI National Symposium in Chemistry held at BHU, Banaras on February 1-3, 2013. M. S. Chauhan, F. Hussain and **S. Singh**\*
  10. A poster entitled “Synthesis and Characterization of L-Prolinamide Based Chiral Mn(III) Salen Complexes and Their Applications in Asymmetric Catalysis” **19<sup>th</sup> ISCB International Conference (ISCB-2013), 2<sup>nd</sup>-5<sup>th</sup> March, 2013** at Department of Chemistry, University College of Science, Mohanlal Sukhadia University, Udaipur, Rajasthan. P. Kumar, F. Hussain and **S. Singh**\*
  11. A oral presentation at National Conference on Chirality (NCC)-2013, 7-8, December 2013, Department of Chemistry, Faculty of Science, M.S. University of Baroda, Vadodara, Gujrat, Synthesis and Characterization of L-Prolinamide Based Chiral Mn(III) Salen Complexes and Their Applications in Asymmetric Strecker Reaction. P. Kumar and **S. Singh**\*
  12. Presented a poster in National Conference on Chirality (NCC)-2013, 7-8, December 2013, Department of Chemistry, Faculty of Science, M.S. University of Baroda, Vadodara, Gujrat “Synthesis and Characterization of Chiral Prolinamide modified with ionic liquid for asymmetric Aldol Reaction” on December 7-8, 2013. G. D. Yadav and **S. Singh**\*
  13. Presented a poster in 15<sup>th</sup> CRSI National Symposium in Chemistry and 7<sup>th</sup> RSC-CRSI Symposium in Chemistry on “Selectfluor as a reusable catalyst chemo-and regio-selective ring opening of epoxides with amines under microwave irradiation” on February 1-3, 2013. M. S. Chauhan, F. Hussain and **S. Singh**\*
  14. Presented a poster in 20<sup>th</sup> ISCB conference at University of Delhi on March 1-4, 2014. “Synthesis and Characterisation of Ionic Liquid with Prolinol as Recyclable Catalyst for Asymmetric Reduction of Ketones”. M. S. Chauhan and **S. Singh**\*
  15. Presented a poster in 20<sup>th</sup> ISCB conference at University of Delhi on March 1-4, 2014. “Ring-opening of epoxides with alcohol using Fe(Cp)<sub>2</sub>BF<sub>4</sub> as catalyst”, G. D. Yadav and **S. Singh**\*
  16. Presented a poster in One-day Symposium on Emerging trends in translation research in India entitled “Synthesis and characterization of Prolinol based chiral ionic liquid” at Shiv Nadar University, India on 12<sup>th</sup> April, 2014, M. S. Chauhan and **S. Singh**\*
  17. Presented a poster in One-day Symposium on Emerging trends in translation research in India entitled “Highly efficient regio-selective methanolysis of epoxide catalyzed Fe(Cp)<sub>2</sub>BF<sub>4</sub>” at Shiv Nadar University, India on 12<sup>th</sup> April, 2014, G. D. Yadav and **S. Singh**\*
  18. An Oral presentation entitled “ Synthesis and development of chiral salalen and salan ligands and its transition metal complexes for asymmetric organic transformations, National Conference on Mastering in Molecules and Materials (M<sup>3</sup>-2014) 16-17 Oct 2014, S. Singh\*
  19. A poster entitled “Fe(Cp)<sub>2</sub>BF<sub>4</sub> as a Lewis acid catalyst for ring opening of epoxides with amines” National Conference on Mastering in Molecules and Materials (M<sup>3</sup>-2014) 16-17 Oct 2014, G. D. Yadav and S. Singh\*
  20. A Oral presentation in 22<sup>nd</sup> National Symposium on Catalysis (CATSYMP 22) CSIR-CSMCRI January 7-9,2015, entitled “ Development of recoverable chiral 1,3,2-oxazaborolidine catalyst for asymmetric reduction of ketones, M. S. Chauhan and **S. Singh**\*
  21. A poster presentation in 22<sup>nd</sup> National Symposium on Catalysis (CATSYMP 22) CSIR-CSMCRI January 7-9,2015, entitled “*Trans*-4-hydroxy-L-prolinamide act as an efficient catalyst for

<p>asymmetric aldol reaction” G. D. Yadav and <b>S. Singh</b>*</p> <p>22. An Oral presentation in National Conference on Frontiers at the Chemistry-Allied Science Interface (FCASI) March 13-14, 2015 at Rajasthan University. Jaipur entitled “Development of Recoverable Organo Catalyst for Asymmetric Diels-Alder Reaction”, M. S. Chauhan and <b>S. Singh</b>*</p> <p>23. An Oral presentation in National Conference on Frontiers at the Chemistry-Allied Science Interface (FCASI) March 13-14, 2015 at Rajasthan University. Jaipur entitled “Synthesis of 4-hydroxy-(L)-prolinamide as efficient catalyst for the asymmetric direct aldol reaction” M. S. Chauhan and <b>S. Singh</b>*</p>
<p><b>Research Projects (Major Grants/Research Collaboration)</b></p>
<ol style="list-style-type: none"> <li>1. DU-DST PURSE Grant of 3.8 Lac</li> <li>2. R&amp;D Grant from Delhi university 2.5 Lac for year 2010-2011</li> <li>3. R&amp;D Grant from Delhi university 2.5 Lac for year 2011-2012</li> <li>4. R&amp;D Grant from Delhi university 2.5 Lac for year 2012-2013</li> <li>5. R&amp;D Grant from Delhi university 2.8 Lac for year 2013-2014</li> <li>6. Research project completed sponsored by Reliance Industry Limited (RIL), 20.5 Lac for one year and six month duration</li> <li>7. Research Project on-going sponsored by DST “Fast track Young Scientist” 27.0 Lac for three year duration (2013-2016)</li> <li>8. Research Project on-going sponsored by CSIR-EMR, 18.4 Lac for three year duration (2013-2016)</li> </ol>
<p><b>Awards and Distinctions</b></p>
<ol style="list-style-type: none"> <li>1. <b>CSIR-JRF in 2001</b></li> <li>2. <b>Irish Research Council of Science, Engineering and Technology (IRCSET) post-doctoral fellowship 2006</b></li> <li>3. <b>Best paper presentation Award TAGRSM-2003</b></li> </ol>
<p><b>Association With Professional Bodies</b></p>
<ol style="list-style-type: none"> <li>1. <i>Editing</i></li> <li>2. <i>Reviewing</i></li> <li>3. <i>Advisory</i></li> <li>4. <i>Committees and Boards</i>  <i>Member of Departmental seminar committee</i>  <i>Member of committee constituted to combat Holi hooliganism</i>  <i>Member of the Screening committee for post principal</i></li> <li>5. <i>Memberships</i>  <i>Chemical Research Society of India (CRSI)</i>  <i>Indian Society of Chemist and Biologists (ISCB)</i></li> <li>6. <i>Office Bearer</i></li> </ol>
<p><b>Other Activities</b></p>