



Contact Details: 8894211891

Academic Qualification: Ph.D. (NET, JRF and Post Doc)

- Positions Held:**
1. Associate Professor and Head, Shoolini University, Bajhol, Solan (HP) India, Oct 2017-Jan 2020.
 2. Assistant Professor, Shoolini University, Bajhol, Solan (HP) India, Nov 2012-Oct 2017 (On leave from May 2014-Dec 2016.)
 3. Chinese Academy of Sciences Postdoctoral Fellow, Institute of Metal Research, Shenyang National laboratory, Shenyang (China), May 2014-Dec 2016.
 4. Fulbright Nehru Postdoctoral Fellow, University of Kentucky, Lexington (USA), Aug 2011-Aug 2012.
 5. Research Scientist, Jubilant LifeSciences R&D center, Noida-U.P.(India) [USFDA Approved], Aug 2009-July 2011.
 6. Research Officer, IndSwift Labs Ltd. R&D Center, Mohali-Punjab (India) [USFDA Approved], October 2007-July 2009.

Specialisation: Organic Chemistry

Research Interest: Heterogeneous Catalysis, Carbon Materials, Metal Free Catalysis, Biomass Conversion, Organic Synthesis and Electrochemical sensing

Publications: **PEER REVIEW JOURNALS (Starting from ten best)**

1. Carbon based catalysts for the hydrodeoxygenation of lignin and related molecules: A powerful tool for the generation of non-petroleum chemical products including hydrocarbons, Vinit Sharma, Tokuma Getahun, Minal Verma, Alberto Villa, **Neeraj Gupta***, *Sustainable and Renewable Energy Reviews (Elsevier)*, 2020, 133, 110280. (ISSN: 13640321; Impact Factor 12.5 with a cite score of 25.5).
2. Improved Pd/Ru metal supported graphene oxide nano-catalyst for hydrodeoxygenation of vanillyl alcohol, vanillin and lignin,

- Shalini Arora, **Neeraj Gupta**, Vasundhara Singh, *Green Chemistry (RSC)*, 2020, 22, 2018-2027 (ISSN: 1463-9262; Impact Factor 9.4).
- Recent developments in heterogeneous catalytic routes for the sustainable production of succinic acid from biomass resources, Minal Verma, Parteek Mandyal, Dilbag Singh and **Neeraj Gupta***, *ChemSusChem (Wiley)*, 2020, 13, 4026-4034. (ISSN:1864-564X; Impact Factor 8.0).
 - Metal free alkene hydrogenation by B-doped graphitic carbon nitride, Ashima Dogra, Ilaria Barlocco, Amritpal Singh, Ferenc Somodi, Alberto Villa and **Neeraj Gupta***, *Catal. Sci. Tech (RSC)* 2020, 10, 3024-3028 (ISSN 2044-4761, Impact Factor 5.8).
 - Carbon nanotube based materials for electrochemical sensing of neurotransmitter dopamine, Kanchan Bala, Deepika Sharma, **Neeraj Gupta***, *ChemElectroChem (Wiley)*, 2019, 6, 274-288 (ISSN: 2196-0216; Impact Factor 4.2). **This article is selected for cover feature by ChemElectroChem-The prestigious "Wiley" Journal.**
 - Carbocatalysing the preparation of N-rich heterocyclic compounds, **Neeraj Gupta**, Oleksiy Khavryuchenko, Guodong Wen, Kuang-Hsu Wu, Fuwei Li, Dangsheng Su, *Carbon (Elsevier)*, 2018, 130, 714-723 (ISSN: 0008-6223; Impact Factor 8.8).
 - Metal-Free Oxidation of Glycerol over Nitrogen-Containing Carbon Nanotubes. **Neeraj Gupta**, Oleksiy Khavryuchenko, Alberto Villa, Dangsheng Su, *ChemSusChem (Wiley)*, 2017, 10, 3030-3034. (ISSN:1864-564X; Impact Factor 8.0).
 - Palladium and carbon synergistically catalyzed room-temperature hydro-deoxygenation of vanillyl alcohol-A typical lignin model molecule. Wang Qi, **Neeraj Gupta**, Guodong Wen, Sharifah Bee Abd Hamid, Dangsheng Su, *J. Energ. Chem (Elsevier)*, 2017, 26 (1) 8-16. (ISSN 2095-4956 and Impact Factor 7.4).
 - Palladium supported on nanodiamonds as an efficient catalyst for the hydrogenating deamination of benzonitrile and related compounds, **Neeraj Gupta**, Yuxiao Ding, Zhenbao Feng, Dangsheng Su, *ChemCatChem (Wiley)*, 2016, 8 (5), 922-928. (ISSN: 1867-3880; Impact Factor 4.8).
 - Heterogenization of homogenous reaction system on carbon surface with ionic liquid as mediator, Yuxiao Ding, Bingsen Zhang, **Neeraj Gupta** and Dang Sheng Su, *Green Chem. (RSC)*, 2015, 17 (2), 1107 – 1112. (ISSN: 1463-9262; Impact Factor 9.4).
 - Synthesis of biphenyl through the C-H bond activation in benzene over a Pd catalyst supported on graphene oxide, Deepika Sharma, Lyubov G. Bulusheva, Dmitri A. Bulushev and **Neeraj Gupta***, *New J. Chem. (RSC)*, 2020, DOI

<https://doi.org/10.1039/DoNJ02230F> (ISSN 1144-0546 and Impact Factor 3.2).

12. Growth mechanism of rGO/CDs by electrospun calcination process: Structure and Application, Vinit Sharma, Gun Anit Kaur, **Neeraj Gupta***, Mamta Shandilya, *Flat Chem (Elsevier)*, 2020, 24, 100195. (ISSN: 2452-2627, Impact Factor/Cite Score 6.3).
13. Chemical composition, antibacterial and antioxidant activities of essential oils from *Laggera tomentosa* Sch. Bip. ex Oliv. et Hiern (Asteraceae), Tokuma Getahun, Vinit Sharma, Deepak Kumar, **Neeraj Gupta***, *Turkish Journal of Chemistry*, 2020, DOI: 10.3906/kim-2004-50. (ISSN: 13036130, Impact Factor 1.1).
14. Chemical composition, antibacterial and antioxidant activities of oils obtained by different extraction methods from *Lepidium sativum* L. seeds, Tokuma Getahun, Vinit Sharma, **Neeraj Gupta***, *Industrial Crops and Products* (Elsevier), 2020, 156, 112876. (ISSN and Impact Factor 4.5)
15. Chemical composition and biological activity of essential oils from *Aloe debrana* roots, Tokuma Getahun, Vinit Sharma, **Neeraj Gupta***, *Journal of Essential Oil Bearing Plants* (Taylor and Francis), 2020, DOI <https://doi.org/10.1080/0972060X.2020.1788996> (ISSN 0972060X and Impact Factor 0.67).
16. Versatile carbon supported mono and bimetallic nanocomposites: Synthesis, characterization and their potential application for furfural reduction, Deepika Sharma, Jagadeesh Suriyaprakash, Ashima Dogra, Shahram Alijani, Alberto Villa, **Neeraj Gupta***, *Mater. Today Chem.*, 2020, Accepted, (ISSN 2468-5194 and Impact Factor 4.6)
17. DL-Valine assisted fabrication of quercetin loaded CuO nanoleaves through microwave irradiation method: Augmentation in its catalytic and antimicrobial efficiencies, Kumari Mansi, Raj Kumar, Jaspreet Kaur, S.K.Mehta, Satish Kumar Pandey, Deepak Kumar, Ashutosh K. Dash, **Neeraj Gupta***, *Environ. Nanotech. Monitoring & Management (Elsevier)*, 2020, <https://doi.org/10.1016/j.enmm.2020.100306>. (ISSN 2215-1532 and Impact Factor 3.9)
18. Derivatized Carbon Nanotubes for Gene Therapy in Mammalian and Plant Cells, Adhish Singh, Dr. Ming Hua Hsu, **Dr. Neeraj Gupta**, Dr. Partha Khanra, Dr. Pankaj Kumar, Dr. Ved Prakash Verma, Dr. Mohit Kapoor, *ChemPlusChem (Wiley)*, 2020, 85, 466-475 (ISSN 2192-6506 and Impact Factor 3.4)
19. Aluminum-Based Catalysts for Cycloaddition Reactions: Moving One Step Ahead in Sustainability, Ashima Dogra, **Neeraj Gupta***, *ChemistrySelect (Wiley)*, 2019, 10452– 10465. (ISSN 2365-6549 and Impact Factor 1.8)
20. The genus *Laggera* (Asteraceae) – Ethnobotanical and Ethnopharmacological Information, Chemical Composition of its

Essential Oils and their Biological Activities: A Review, Tokuma Getahun, Vinit Sharma, **Neeraj Gupta***, *Chem. Biodiv. (Wiley)*, **2019**, doi/abs/10.1002/cbdv.201900131 (ISSN 16121872 and Impact Factor 1.6)

21. Choline based basic ionic liquid (BIL)/ acidic DES mediated cellulose rich fractionation of agricultural waste biomass and valorization to 5-HMF, Shalini Arora, **Neeraj Gupta***, Vasundhara Singh, *Waste Biomass Valori. (Springer)*, **2019**, DOI: 10.1007/s12649-019-00603-2 (ISSN 1877-2641 and Impact Factor 2.3)
22. Hydrogen Production from Formic Acid over Au Catalysts Supported on Carbon: Comparison with Au Catalysts Supported on SiO₂ and Al₂O₃, Lyubov G. Bulusheva Dmitri A. Bulushev, Vladimir I. Sobolev, Larisa V. Pirutko, Anna V. Starostina, Igor P. Asanov, Evgenii Modin, Andrey L. Chuvilin, **Neeraj Gupta**, Alexander V. Okotrub, *Catalysts (MDPI)*, **2019**, 9(4), 376 (ISSN 20734344 Impact Factor 3.4)
23. Valorisation of Biomass Derived Furfural and Levulinic Acid by Highly Efficient Pd@ND Catalyst, **Neeraj Gupta**, Nikolaos Dimitratos, Dangsheng Su, Alberto Villa, *Energ. Tech. (Wiley)*, **2019**, 7 (2), 269-276. (ISSN 2194-4288 and Impact Factor 3.1)
24. Copper and cobalt nanoparticles embedded in naturally derived graphite electrodes for the sensing of the neurotransmitter epinephrine, Kanchan Bala, Jagadeesh Suriyaprakash, Prem Singh, Kalpana Chauhan, Alberto Villa and **Neeraj Gupta***, *New J. Chem. (RSC)*, **2018**, 42, 6604-6608. (ISSN 1144-0546 and Impact Factor 3.2).
25. Ionic liquid N-ethylpyridinium hydrogen sulfate as an efficient catalyst for designing indole scaffolds and their antimicrobial behavior. **Neeraj Gupta**, Pushpa Bhardwaj, Gaurav Sharma, *Iran J Cat.*, **2017**, 7, 243-248. (ISSN 2252-0236 and Impact Factor 1.4).
26. Carbon Catalyst Derived from Himalayan Pine for the C-N Coupling of Organic Molecules leading to Pyrrole Formation, **Neeraj Gupta***, Pushpa Bhardwaj, Amit Kumar, *Iran J Cat (IAU-Iran)*, **2017**, 7(2), 171-179. (ISSN 2252-0236 and Impact Factor 1.4).
27. 1,2,4,5-Tetrazines as Platform Molecules for Energetic Materials and Pharmaceuticals, Pushpa Bhardwaj, **Neeraj Gupta***, *Iran J Org Chem (IAU-Iran)*, **2016**, 8 (3), 1827-1831. (ISSN: 2008-3599 and Scopus Indexed).
28. Synthesis of indole and its derivatives in water, **Neeraj Gupta***, Deepti Goyal, *Chem. Het. Comp. (Springer)*, **2015**, 51, 4-16. (ISSN: 0009-3122 and Impact Factor 1.2).
29. Oxidative transformation of alcohols and organic halides in

aqueous solution, **Neeraj Gupta***, Apoorva Thakur and Pushpa Bhardwaj. *New J. Chem. (RSC)*, 2014, 38, 3749-3754. (ISSN 1144-0546; Impact Factor 3.2).

30. First Synthesis of 15-methyltricos-2,4-diyne-1,6-diol (Strongylodiol-G). **Neeraj Gupta**, Shallu, Goverdhan Lal Kad & Jasvinder Singh, *Nat. Prod. Res. (Taylor & Francis)*, 2014, 28, 424-430. (ISSN:1478-6419 and Impact Factor 1.9).
31. Microwave-assisted synthesis of *N*-isobutyl-4,5-epoxy-2(*E*)-decenamamide. **Neeraj Gupta**, Manvinder Kaur, Shallu, Neeru Gupta, Goverdhan Lal Kad & Jasvinder Singh. *Nat. Prod. Res. (Taylor & Francis)*, 2013, 27, 548-553. (ISSN:1478-6419 and Impact Factor 1.9).
32. Enhancing Nucleophilicity in Ionic liquid [bmim]HSO₄; a Recyclable and Benign Media for the Halogenation of alcohols. **Neeraj Gupta**, Govardhan L. Kad and Jasvinder Singh, *J. Mol. Cat. (Elsevier)*, 2009, 302, 11-14. (ISSN: 1381-1169 and Impact Factor 4.2).
33. Regioselective Photochemical and Microwave Mediated Monobromination of Aromatic compounds using 2,4,4,6-Tetrabromo-2,5-cyclohexadienone. **Neeraj Gupta**, Jasvinder Singh, Goverdhan L. Kad, Vasundhara Singh, *Synth. Commun. (Taylor & Francis)*, 2007, 37, 3421-3428. (ISSN: 0039-7911 and Impact Factor 1.4).
34. Acidic ionic liquid [bmim]HSO₄ an efficient and Novel Catalyst for chemoselective acetalisation and thioacetalisation of Carbonyl compounds and their Subsequent Deprotection. **Neeraj Gupta**, Sonu, Jasvinder Singh, G. L. Kad, *Catal. Commun. (Elsevier)*, 2007, 8, 1323-1328. (ISSN: 1566-7367 and Impact Factor 3.8).
35. Efficient Role of Ionic Liquid (bmim)HSO₄ as Novel Catalyst for Monotetrahydropyranylation of Diols and Tetrahydropyranylation of Alcohols. Jasvinder Singh, **Neeraj Gupta**, G. L. Kad, Jasamrit Kaur, *Synth. Commun. (Taylor & Francis)*, 2006, 36, 2893-2900. (ISSN: 0039-7911 and Impact Factor 1.4).

Book Chapter:

36. Nanodiamonds for Catalytic Reactions, Chapter-18, In Book "Nanodiamonds: Advanced Material Analysis, Properties and Applications", **Neeraj Gupta**, Qi Wang, Guodong Wen, Dangsheng Su, (Elsevier), 2017, 439-463. (ISBN: 9780323430326)

Work Published in Conference Proceeding

37. Electrochemical Sensing of Dopamine using Graphene Oxide Derived from Pine Needle Bio-waste, **Neeraj Gupta***, Kshipra Sen, Vikrant Singh, Abhishek Soni, Mohit Kapoor, *AIP*

Conference Proceedings, 2020.

38. Catalytic conversion of saccharides into 5-hydroxymethylfurfural using aluminum Lewis acid catalysts. Folami T. Ladipo, **Neeraj Gupta**, Daudi Saangonyo, Barbara Knutson, Stephen Rankin, Brianna Smith, 2013, September. In *ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY* (Vol. 246). 1155 16TH ST, NW, WASHINGTON, DC 20036 USA: AMER CHEMICAL SOC.

Patent Granted and Commercialized:

39. Improved Process for Preparing Temozolomide, S. B. Bhirud, G. S. Sarin, **Neeraj Gupta**, Parveen Kumar, C. V. Srinivasan, L. Wadhwa, 2010, (US Patent) Pub. No.: WO/2010/140168, International Application No. PCT/IN2010/000365.

Patents Filed:

40. A Process for Ionic Liquid Assisted Chemical Fixation of Carbon Dioxide, Abhishek Soni, **Neeraj Gupta***, **Indian Patent Filed** on 07/01/2020, Application Number 202011000732.
41. Energy Efficient Process for Extraction of Cellulose from Pine Needle Bio-Waste, **Neeraj Gupta***, **Indian Patent Filed** on 23/05/2018, Patent Filing Number 201811019305.
42. Rapid Process for the synthesis of 5-hydroxymethyl Furfural, **Neeraj Gupta***, **Indian Patent Filed** on 16/06/2018, Patent Filing Number 201811022583.
43. Novel Heterogeneous Catalysts for Conversion of Carbohydrates to 5-Hydroxymethylfurfural and Method Thereof, **Neeraj Gupta***, Poorva Devi, Sadhna Sharma, Kanchan Kumari, **Indian Patent Filed** on 08/12/2018, Patent Filing Number 201811046503.

Video and Online Material:

44. Completed one online course 'Spectroscopy for Organic compounds' in the year 2013-14 for the e-Univ program of the university that includes preparation of material for 45 lectures including video recording. **The course was awarded as best state level course by the university and won a cash prize**

Research Projects Completed/Ongoing:

1. Development of Efficient Non-toxic Catalysts for Glucose Conversion to 5-Hydroxymethyl furfural (5-HMF) and related molecules in ionic liquid (by USIEF-New Delhi and Fulbright Commission USA, year 2011).
2. Development of environmental benign technologies for the conversion of cellulose into value added chemicals (By DST-New Delhi, Year 2013).
3. I was awarded postdoctoral fellowship by Chinese Academy of Sciences for my project on "Developing the carbon based catalyst for catalytic conversion of lignocellulosic biomass." (June 2014-Dec 2016)

4. Deriving methyl furans from Himalayan Biomass as sustainable alternative to petroleum products, Project awarded for the year (2019-20) by HIMCOSTE, Himachal Pradesh, India.
5. Design and application of new green adsorbent cum sensor for water application from industrial area of HP, by HIMCOSTE. Apoorva Thakur (12CHEMPH10), Bandana Kumari (13CHEMPH08), Himanshi Kapur (13CHEM13), Priyanka Palsara (13CHEMPH07), Mansi Kumari (1834701011) and Shailja Sharma (1834601002) have been awarded degree from Shoolini University in the year 2013, 2014, 2019 and 2020.

M.Phil. Supervised:

Ph.D. Supervised:

1. Ph.D Completed

As the only supervisor

- (a) **Pushpa Bhardwaj (12CHD05)**, has successfully defended her thesis in March 2017 (Title of Thesis: Studies towards the Synthesis of Indole and Imidazole Derivatives using Environmental Benign Methodologies). Thesis of Pushpa Bhardwaj (First Ph.D student) is available online.
- (b) **Kshipra Sen (1734701006)**, has been awarded degree this year (Title of thesis: Functionalized biomaterials for environmental and biological applications).
- (c) **Deepika Sharma (1734701002)**, has submitted her thesis in September 2020 (Title of thesis: Carbon based catalysts for the activation of un-reactive carbon-hydrogen bond and biomass conversion).
- (d) **Ashima Dogra (1734701008)**, has presented her pre-thesis in August 2020 and writing thesis these days (Title of thesis: Metal free carbon based catalysts for hydrogen activation and biomass valorization).
- (e) **Tokuma Getahun (1834701013)**, has submitted his thesis in December 2020 (Title of thesis: Chemical compounds and essential oils from *Lepidium sativum*, *Aloe debrana* and *Laggera tomentosa* and their antioxidant as well as antibacterial activities).

As a Co-supervisor

- (f) **Shalini Arora (16301001)**, has submitted her thesis in January 2021 (Title of thesis: New catalytic methodologies for isolation of lignocellulosic components from agricultural waste biomass and their valorization, Supervisor: Prof. Vasundhara Singh, PEC University of Technology Chandigarh)

Ph.D. Supervising:

Currently supervising Vinit Sharma already enrolled student in my previous institute (Shoolini University)

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| M.Sc Projects supervised | 17 M.Sc Projects finished till June 2020. |
| B.Sc Projects Supervised | 3 B.Sc Project finished till December 2020. |
| Participation in Seminars/Conferences: | <ol style="list-style-type: none"> 1. Invited Talk in Ram Chand Paul Symposium in Panjab University Chandigarh (India), "Tuning Nanocarbon Support for Designing new metal based and metal free catalysts for organic synthesis and biomass conversion" 27th Feb 2020. 2. Invited talk in Eternal University Badu Saheb (HP) India, Potential application of nanocarbon materials in Catalysis and Electrochemical Sensing, 31st August 2018. 3. Oral presentation on "Nanodiamonds as metal free catalyst for the synthesis of triazole" in Contemporary Facets of Organic Synthesis (CFOS) organized by IIT Rorkee (India) on 24th December 2016. 4. Delivered a talk in Poznan university of Technology, Poznan (Poland) on 21st October, 2015 in the conference "Carbon for Energy Storage/conversion and Environment Protection-CESEP 2015" from October 18-22, 2015. 5. Attended "Third Symposium of Carbon Catalysis" in "IMR, Shenyang National laboratory, Shenyang (China)" from 7-8th May 2015. 6. Attended 5th Trilateral (Singapore, India and China) Conference on Advances in Nanoscience: Energy, Water & Healthcare in "IMR, Shenyang National laboratory, Shenyang (China)", 25th - 28th September 2014. 7. I was invited by USIEF New Delhi (India) as a resource person on 8th April, 2013 for guiding the future aspirants. 8. Delivered a talk in University of Kentucky-Lexington (USA) on 31st August 2012. Title of the talk was: Developing green technology for the synthesis of value added chemicals and biological active compounds. 9. Attended 16th American Chemical Society's (ACS) Green Chemistry Conference in Washington DC (USA) in 18th-20th June 2012. 10. Attended "Frontiers in Nanochemistry" in Beijing University (China) from June 5-8, 2015. |
| Membership of Learned Societies/ Professional Bodies: | <ol style="list-style-type: none"> 1. Life member of Fulbright Alumni Association 2. Life member of Him Science Congress Association |
| Awards & Honours | <ol style="list-style-type: none"> 1. Prestigious Fulbright Nehru Postdoctoral Research Fellowship (Aug 2011-Aug 2012) Award by United States India Educational Foundation. |

Received:

2. **Prestigious Postdoctoral Award by Chinese Academy of Sciences (May 2014- Nov 2016) China.**
3. **Fellowship by C. S. I. R (Council of Scientific and Industrial Research)-New Delhi** during the research period and qualified National Eligibility Test (N.E.T) in Chemistry twice in June and December 2001 respectively.
4. Qualified State Level Eligibility Test (S. L. E. T) - Himachal Pradesh (India) in Dec 2001.
5. I was also offered postdoc in Pennsylvania State University, New Kensington (USA) in the year 2012, but I could not continue due to J1 visa regulations.
6. I was awarded young Scientist Award by Department of Science and Technology in 2014, but it could not be availed due to simultaneous award by Chinese Academy of Sciences.

Work Summary:

Others:

I am working in the **area of catalysis** with exposure to carbon materials with a main focus on metal free catalysis, biomass conversion, electrochemical sensing and their application in the synthetic organic chemistry. I have worked in U.S.F.D.A approved pharmaceutical industries in India for four years, with additional exposure of 3.5 years as postdoctoral fellow in USA and China. I have spent one year in USA as a Fulbright Nehru Scholar and 2.5 years in Chinese Academy of Sciences, Shenyang-China. **Fulbright award is one of the most prestigious award conferred by United States of America; and Chinese Academy of Sciences is among one of the top ten ranked research institutes in the world.** During my industrial exposure, I have worked on the synthesis of “active pharmaceutical ingredients (Drugs)” and developed the processes on commercial scale as per U.S.F.D.A norms. During my postdoctoral exposure in USA, I worked on the conversion of glucose to HMF by homogeneous catalytic pathways. I gained additional experience in “Heterogeneous Catalysis, Biomass Conversion, Electrochemical Sensing and Organic Synthesis” in China. I have worked on organic conversions and synthesis using nanocarbon as a catalyst. In addition to above details, I have also supervised eleven M.Sc and three B.Sc. projects till June 2019.

