

SHIV SINGH

E-mail : sshivitkgmail.com, shiv_singh_17@yahoo.com

Mob. No : (+91)-7499178214/ 7380679799

Webpage: <http://in.linkedin.com/in/sshiv/>
https://www.researchgate.net/profile/Shiv_Singh18



Work experience:

- **DST INSPIRE FACULTY** at **CSIR-IITR, Lucknow** (2016 to 2020)
- **Postdoctoral Fellow (Foreign Expert)** in **Korea Institute of Materials Science**, South Korea from March 2015-March 2016

Education:

Ph.D. (Chemical Engineering), 2015 (Development of metal nanoparticles-dispersed carbon micro-nanofibers for biochemical and energy applications)	Indian Institute of Technology Kanpur, Kanpur (CPI 8/10)
M.E. (Chemical Engineering) 2010	Jadavpur University, Kolkata (CGPA 8.5/10)
B. Tech. (Food Technology) 2008	Allahabad Agricultural Institute Deemed University, (CPI 9.05 /10)
Class XII (Intermediate) 2000	Lucknow Public Inter College, Lucknow (U.P. Board) Percentage: 73.5
Class X (High school) 1998	Lucknow Public Inter College, Lucknow (U.P. Board) Percentage: 75.5

Sponsor project as PI:

Conversion of CO₂ into useful fuel gases via novel nanoparticles dispersed N-doped graphitic nanofiber electrodes based bio-electrochemical fuel cell (**84 lakhs** by **DST**)

Research Area:

- *Bioelectrochemical Fuel Cell (MEC/MFC)*
- *Synthesis of ceramic matrix composite (CMC) via polymer infiltration and pyrolysis, and chemical vapor infiltration process*
- *Synthesis of polymeric proton exchange membrane.*
- *Synthesis of Catalyst (metal nanoparticles and carbon nanofiber) for environmental remediation and biochemical application*
- *Synthesis of Chlorine derived Carbon*
- *Adsorption studies of Biomolecules*
- *Waste water treatment & measurement of physicochemical properties of industrial water, coastal water like pH, TSS COD, BOD, DO, salinity, conductivity.*

Honours, Fellowships:

- Listed in **Marquis Who's Who in the World, 2017**
- **DST INSPIRE FACULTY** award (2016-2021)
- **GATE 2007** and **2008**
- **MHRD** fellowship during **PhD (2010-2015)**

- **Best Poster award** at Fuel Cells 2014 Science & Technology conference, Amsterdam, The Netherlands
- **Best Oral presentation award** in P.G. Scholar Day, Department of Chemical Engineering, Indian Institute of Technology Kanpur, Kanpur
- Shortlisted for '**Young Scientist' Research Scholar** category in 20th World Hydrogen Energy Conference 2014, Gwangju Metropolitan City, Korea
- **Travel Grants**
 - i. **Department of Science & Technology for** Fuel Cells 2014 Science & Technology conference, Amsterdam, The Netherlands
 - ii. **Semiconductor society of India for** 20th World Hydrogen Energy Conference 2014, Gwangju Metropolitan City, Korea
 - iii. **Centre for International Co-operation in Science and Council of Scientific & Industrial Research** For 21st International Congress Of Chemical And Process Engineering Chisa 2014, Prague, Czech Republic

Major Project handled during doctoral and post doctoralProgram:

- Development of microbial fuel cell using bimetal laden carbon nanofiber as cathode and anode (Under **MHRD**).
- Development of carbon nanofiber grown nano-Ag/Cu impregnated activated carbon fabrics for biological and chemical protection (Sponsored by **DMSRDE (DRDO), Kanpur**).
- Development of micro/ nano carbon fibers as support for enzyme immobilization and separation of amino acids from aqueous systems (Sponsored by **Department of Biotechnology (DBT), New Delhi**).
- Fabrication of **SiC/SiC_r composite** for ultra-high temperature applications

Book/s Published:

Shiv Singh, Physico-chemical properties of coastal water at Bakkhali, Bay of Bengal **LAP Lambert Academic Publishing, ISBN 978-3-8443-8556-4**

Patent:

"Method for preparation of graphitic carbon micro-nanofiber based electrodes, asymmetrically dispersed with bimetal nanoparticles" (Filed January, 2015; Inventors: Nishith Verma and **Shiv Singh, Ref. No DEL/654/2015**)

Hands on exposure:

- BET Quantachrome instrument (Chemisorption and Physisorption)
- Temperature Programmed Reduction and Spark plasma sintering
- FT-IR
- Atomic Absorption Spectroscopy
- UV-Vis and Gas Chromatography
- CHNO Elemental Analyzer
- Thermo Gravimetric Analysis
- Particle Size Analyzer
- Ball Mill (cryogenic)
- Chemical Vapour Deposition and Chemical vapor infiltration
- Scanning Electron Microscope
- X-ray Diffraction

Scientific Publications:

1. **S. Singh* (corresponding)**, Divya Singh, Sheelendra Pratap Singh and Alok Kumar Pandey, Candle soot derived carbon nanoparticles: Assessment of physico-chemical properties, cytotoxicity and genotoxicity. (Submitted, 2018).
2. Aditya Pankaj, Kshitij Tewari, Sheelendra Pratap Singh, **S. Singh* (corresponding)**, Waste candle soot derived fluorescence nitrogen doped carbon dots based sensor probe: An efficient and inexpensive route to detect heavy metals. (Submitted, 2018)
3. **S. Singh** Bio Energy Production Using Carbon Based Electrodes in Double and Single Chamber Microbial Fuel Cells: A Review Progress Petrochem Science. (**Accepted**, 2018)
4. **S. Singh**, L. Feng, J. Yin, BL. Yoon, A. Mohan, SH. Lee, D. Kim, Fabrication of SiC_f/SiC composites fabricated via novel popping and precursor infiltration and pyrolysis processes. **Materials & Design** (under preparation, 2018, **I.F. =4.498**).
5. **S. Singh* (corresponding)**, P. Bairagi and N. Verma, Candle soot-derived carbon nanoparticles: An inexpensive and efficient electrode for microbial fuel cells. **Electrochimica Acta** 264:119-127 (2018). **I.F. = 4.830**
6. **S. Singh * (corresponding)**, A. Srivastava, S. P. Singh, Inexpensive, effective novel activated carbon fibers for sample cleanup: application to multipesticide residue analysis in food commodities using a QuEChERS method. **Analytical and Bioanalytical Chemistry** 410(8), 2241-2251 (2018). **I.F.= 3.531**
7. S. Gupta, A. Yadav, **S. Singh**, N. Verma, Synthesis of silicon carbide-derived carbon as an electrode of a microbial fuel cell and an adsorbent of aqueous Cr(VI). **Industrial & Engineering Chemistry Research** 56:1233–1244 (2017). **I.F.=2.843**
8. A. Modi, **S. Singh (equal contribution)** and N. Verma, Improved Performance of Single Chamber Microbial Fuel Cell using Nitrogen-doped Polymer-Metal-Carbon Nanocomposite-based Air-Cathode. **International Journal of Hydrogen Energy** 42:3271-3280 (2017). **I.F. =3.647**
9. **S. Singh**, A. Modi and N. Verma, Enhanced power generation using a novel polymer-coated nanoparticles dispersed-carbon micro-nanofibers-based air-cathode in a membrane-less single chamber microbial fuel cell. **International Journal of Hydrogen Energy** 41:1237-1247(2016). **I.F. =3.647**
10. **S. Singh**, R. Shalini, Effect of Hurdle Technology in Food Preservation: A Review. **Critical Reviews in Food Science and Nutrition** 56(4):641-49 (2016). **I.F. =6.07**
11. A. Modi, **S. Singh (equal contribution)** and N. Verma, In situ nitrogen-doping of nickel nanoparticle-dispersed carbon nanofiber-based electrodes: Its positive effects on the performance of a microbial fuel cell. **Electrochimica Acta** 190:620-627(2016). **I.F. =4.630**
12. **S. Singh** and N. Verma, Graphitic carbon micro-nanofibers asymmetrically dispersed with alumina-nickel bimetal nanoparticles: a novel electrode for mediator-less microbial fuel cells. **International Journal of Hydrogen Energy**.40:5928-5938 (2015). **I.F. =3.647**

13. **S. Singh** and N. Verma, Fabrication of Ni nanoparticles-dispersed carbon micro-nanofibers as the electrodes of a microbial fuel cell for bio-energy production. **International Journal of Hydrogen Energy** 40, 1145–1153 (2015). **I.F. =3.647**
14. **S. Singh**, A. Singh, V. S. S. Bais, B. Prakash, N. Verma, Multi-scale carbon micro/nanofibers-based adsorbents for protein-immobilization. **Materials Science and Engineering: C** 38, 46–54 (2014). **I.F. =4.164**
15. **S. Singh**, H. C. Joshi, A. Srivastava, A. Sharma, N. Verma, An efficient antibacterial multi-scale web of carbon fibers with asymmetrically dispersed Ag–Cu bimetal nanoparticles. **Colloids and Surfaces A: Physicochemical and Engineering Aspects** 443, 311-319 (2014). **I.F. =2.838**
16. **S. Singh**, M. Ashfaq, R. K. Singh, H. C. Joshi, A. Srivastava, A. Sharma, N. Verma, Preparation of surfactant-mediated silver and copper nanoparticles dispersed in a hierarchical carbon micro-nanofibers for antibacterial applications. **New Biotechnology** 30, 656-665 (2013). **I.F.=3.813**
17. M. Ashfaq, **S. Singh**, A. Sharma, N. Verma, Cytotoxic Evaluation of the Hierarchical Web of Carbon Micronanofibers. **Industrial & Engineering Chemistry Research** 52, 4672-4682 (2013). **I.F.=2.843**
18. **S. Singh**, A. Sharma, N. Verma, H. C. Joshi, R. K. Singh, A. Srivastava, Preparation of novel Ag nanoparticles dispersed Activated carbon micro and carbon nanofibers for anti-bacterial application. **Environmental Engineering and Management Journal** 11, S115-S120 (2012). **I.F. =1.09**
19. M. Bikshapathi, **S. Singh**, B. Bhaduri, G. N. Mathur, A. Sharma, N. Verma, Fe-nanoparticles dispersed carbon micro and nanofibers: Surfactant-mediated preparation and application to the removal of gaseous. **Colloids and Surfaces A: Physicochemical and Engineering Aspects** 399, 46-55 (2012). **I.F. =2.838**
20. **S. Singh**, A. Kumar, R. Shalini, Effect of packaging materials and temperatures on vitamin A and C of flavoured aloe vera juice. **Mediterranean Journal of Nutrition and Metabolism** 5, 113-117(2012).
21. **S. Singh**, B. Bhaduri, P. Kr. Banerjee, S. Dutta, Assessment of Coastal Water Quality at Bakkhali, West Bengal (India). **Journal of Environmental Science and Engineering** 54, 217-226 (2012).
22. **S. Singh**, A. Kumar, R. Shalini, Effect of Preservation techniques and storage conditions on TSS and pH content of flavoured Aloe-Vera juice, **Beverage & Food World** 36, 15-19 (2009).
23. **S. Singh**, A. Kumar, R. Shalini, Effect of Preservation techniques and storage conditions on of acidity and total ash of flavoured Aloe-Vera juice. **Indian Science Cruiser** 23, 56-59 (2009).

Papers Published & Presented at International/National Conferences:

1. Anshuman Srivastava, **Shiv Singh (corresponding)**, Sheelendra Pratap Singh, A Modified QuEChERS Method Using Activated Carbon Fibers as r-DSPE Sorbent for Sample Cleanup: Application to Pesticides Residues Analysis in Food Commodities Using GC-MS/MS. World Academy of Science, Engineering and Technology International Journal of Chemical and Molecular Engineering Vol:11, No:10, 2017. 19th International Conference on Analytical and Bioanalytical Chemistry New York, USA October 05-06, 2017
2. Kshitij Tewari, Aditya Pankaj, **Shiv Singh (corresponding)**, Sheelendra Pratap Singh, Inexpensive N-doped carbon dots: An efficient optical probe for Hg (II) ions sensing, November 5-6 (2017), 3rd International Toxicology Conclave 2017, CSIR-IITR Lucknow, Uttarpradesh.

3. Minu Singh, **Shiv Singh (corresponding)**, Sheelendra Pratap Singh, A comparison of physico-chemical properties of carbon based nano –materials for environmental applications, November 5-6 (2017), 3rd International Toxicology Conclave 2017, CSIR-IITR Lucknow, Uttarpradesh.
4. Harshita Pandey, Anshuman Srivastava, Kajal karsauliya, **Shiv Singh (corresponding)**, Sheelendra Pratap Singh, Effective removal of Bisphenol A from water via phenolic resin based activated carbon fibres based filter, November 5-6 (2017), 3rd International Toxicology Conclave 2017, CSIR-IITR Lucknow, Uttarpradesh.
5. Akshay Modi, **Shiv Singh** and Nishith Verma, “Improved performance of nitrogen-doped carbon nanofiber-based air-cathode single chamber microbial fuel cell, December 27-30, 2015, 68th Annual Session of Indian Institute of Chemical Engineers (CHEMCON-2015), Indian Institute of Technology, Guwahati
6. Akshay Modi, Bhaskar Bhaduri, **Shiv Singh** and Nishith Verma, Development of N-functionalized and metal-decorated carbon nanofibers, December 27-30 (2014), 67th Annual Session of Indian Institute of Chemical Engineers (CHEMCON-2014) Chandigarh, India
7. **Shiv Singh**, Nishith Verma, Fabrication of high performance and low cost Al/Ni-doped carbon micro- nanofiber-based electrodes for microbial fuel cell, August 23-27 (2014), 21st International Congress of Chemical And Process Engineering Chisa 2014, Prague, Czech Republic.
8. **Shiv Singh**, Nishith Verma, Polymer-bimetal nanoparticles-carbon micro-nanofiber composite-based electrodes for single chambered microbial fuel cell, June 15-20 (2014), The 20th World Hydrogen Energy Conference 2014, Gwangju Metropolitan City, Korea.
9. **Shiv Singh**, Nishith Verma, High efficiency and cost effective bioelectricity production from microbial fuel cell using aluminium-nickel nanoparticles dispersed carbon micro-nanofiber, April 3-4 (2014), Fuel Cells 2014 Science & Technology conference , Amsterdam, The Netherlands.
10. **Shiv Singh**, Abhinav Singh, VaibhavSushil Singh Bais, Balaji Prakash and Nishith Verma, Synthesis and characterization of carbon micro and nanofibers for immobilization of different biomolecules, October 3-5 (2013),National Level Conference on Nanomaterial and Devices (NCONAD-2013), Srinagar, India.
11. Nishith Verma, **Shiv Singh**, Abhinav Singh, Amit R Hood and BalajiPrakash, Immobilization of biomolecules from aqueous solution by carbon micro and carbon nanofiber, September 13-15 (2012), 3rd India World Congress on Biotechnology, Hyderabad International Convention Centre, Hyderabad, India.
12. MohamadAshfaq, **Shiv Singh**, Ashutosh Sharma, Nishith Verma, Genotoxicity of hierarchical web of carbon micro-nano fibers.September 13-15 (2012), 3rd India World Congress on Biotechnology, Hyderabad International Convention Centre, Hyderabad, India.
13. **Shiv Singh**, Ashutosh Sharma, Nishith Verma, Rohitashaw Kumar Singh, Harish C. Joshi and Anurag Srivastava, Preparation of novel ag nanoparticles dispersed activated carbon micro and carbon nanofibers for anti-bacterial applications, April 10-12 (2012), Environmental Microbiology Biotechnology, Bologna, Italy.
14. **Shiv Singh**, BhaskarBhaduri, Nishith Verma, Rohitashaw Kumar Singh, Harish Chandra Joshi and Anurag Srivastava, Preparation and characterization of Ag-impregnated carbon micron and nanofibers for the removal of microbes in water, December 15-17 (2011), 4th International Congress of Environmental Research, Surat, India.
15. Bhaskar Bhaduri, **Shiv Singh**, Nishith Verma, Cu- impregnated activated carbon microfibers and carbon nanofibers for the production of oxygen from steam December 15-17 (2011), 4th International Congress of Environmental Research, Surat, India.

16. **Shiv Singh**, SujataKaisary, Siddhartha Datta, Prasanta Kumar Banerjee, Environmental Quality Assessment of waters of a section of the Arabian Sea in Goa, February 24-26 (2010), World Academy of Science, Engineering and Technology, Penang, Malaysia.

Personal Details

Father's Name : Mr. Subedar Singh
Mother's Name : Mrs. Sudha Devi
Date of Birth : 20- Dec -1984
Nationality : Indian
Address : 548/C 1053(356), Patel Nagar (Devpur), Chandrodai Nagar, Rajajiuuram, Lucknow, 226017, India
Passport No. : H8780053

Referees

Prof. Nishith Verma,
Center for Environmental Science and Engineering
Department of Chemical Engineering, IIT-Kanpur, Kanpur-208016, India
E-mail: nishith@iitk.ac.in, Tel.: +915122597406 (O), Fax: +91-512-2597704

Prof. Jerald Lalman,
Associate Professor, Department of Civil and Environmental Engineering
University of Windsor,
Windsor, Ontario, Canada N9B 3P4
Email: lalman@uwindsor.ca, Tel: 519-253-3000 ext. 2519| Fax: 519-971-3686

Prof. GoutamDeo,
Department of Chemical Engineering, IIT-Kanpur, Kanpur-208016, India
E-mail: goutam@iitk.ac.in, Tel.: +915122597881/7363 (O)

Prof. Prashanta Kr. Banerjee
Associate Professor, Department of Chemical Engineering
JadavpurUniversity, Kolkata - 700 032, India
peekaybeeju@yahoo.co.in, Tel.: 91-033-2475-7991 (R), 9433069950 (M)

Declaration: - I hereby declare that the above mentioned information is true to my knowledge and belief.



(SHIV SINGH)