DR. ASHISH YADAV

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ACADEMIC QUALIFICATIONS

- **Ph.D. (Chemical Engineering)** 2018, Indian Institute of Technology Kanpur **(CPI: 9.0/10)**
- **M.Tech. (Environmental Engineering & Management)** 2013, Indian Institute of Technology Kanpur **(CPI: 8.5/10)**
- **B.E. (Chemical Engineering)** 2010, University Institute of Chemical Engineering & Technology, Panjab University, Chandigarh **(Percentage: 75.8 - Honors)**
- **Higher Secondary School Certificate Examination** (I.S.C. Board) 2005, Dr. V.S.E.C. Kanpur **(Percentage: 84.2)**
- **Secondary School Certificate Examination** (I.C.S.E. Board) 2003, Dr. V.S.E.C. Kanpur **(Percentage: 80.0)**

RESEARCH INTERESTS

- *Synthesis of carbon-based nanomaterials (carbon nanofibers, polymeric beads, graphene, micro-pillars/channels)*
- *Hydrogen storage and production*
- *Microbial fuel and electrolytic cell*
- *Chemiresistive and electrochemical sensors*
- *Wastewater treatment*

RESEARCH EXPERIENCE

Ph.D. 2013-2018
(IIT Kanpur)

Thesis Title: *Novel carbon-based nanomaterials in situ dispersed with metal nanoparticles for hydrogen production, storage and environmental remediation applications*

Supervisor: Prof. Nishith Verma
(Department of Chemical Engineering,
IIT Kanpur)

M.Tech. 2011-2013
(*IIT Kanpur)*

Thesis Title: *Biomarker-based risk assessment of lead and cadmium in Kanpur city*

Supervisor: Prof. Mukesh Sharma
(Environmental Engineering & Management
Programme, IIT Kanpur)

PATENT

- "Process for the treatment of wastewater" (International patent no: WO 2015/114486 Al - filed). Inventors: **Ashish Yadav**, Nishith Verma (IIT Kanpur); Kaushik Basak and Arian Von Mourik **(Shell International Research Maatschappiz BV, The Netherlands)**.

BOOK CHAPTER

- **Yadav A***, Verma N*. 3D Graphene-Based Scaffolds with High Conductivity and Biocompatibility for Applications in Microbial Fuel Cells in "*Graphene-Based 3D Macrostructures for Clean Energy and Environmental Applications"* edited by Rajasekhar Balasubramaniam and Shamik Chowdhury (2020), **Royal Society of Chemistry** - in press (*corresponding authors)

RESEARCH PUBLICATIONS

[1] **Yadav A**, Kumar A, Verma N. Microchannel–engraved and Cu–dispersed carbon nanocomposite film as a chemiresistive sensor for aqueous metal ions. ***Chemical Engineering Science*** 2021, 231, 116282. **(Impact factor: 3.871)**

[2] George JK, **Yadav A***, Verma N*. Electrochemical hydrogen storage behavior of Ni-ceria-impregnated carbon micro-nanofibers. ***International Journal of Hydrogen Energy*** 2021, 46, 2491-2502. (*corresponding authors) **(Impact factor: 4.939)**

[3] George JK, **Yadav A**, Verma N. Efficient microfiltration of oil-water emulsion using ACF-supported and GO-dispersed RF membrane. ***Separation and Purification Technology*** 2020, 251, 117310. **(Impact factor: 5.774)**

[4] Pophali A, **Yadav A**, Verma N. Efficient oxygen reduction in a microbial fuel cell based on carbide-derived carbon electrode synthesized using thiourea as the single source of electroconductive heteroatoms and graphitic carbon. ***International Journal of Hydrogen Energy*** 2019, 44, 10982-10995. **(Impact factor: 4.939)**

[5] **Yadav A**, Verma N. Enhanced hydrogen production using Ni-graphene oxide-dispersed laser-engraved 3D carbon micropillars as electrodes for microbial electrolytic cell. ***Renewable Energy*** 2019, 138, 628-638**. (Impact factor: 6.274)**

[6] **Yadav A**, Verma N. Carbon bead-supported copper-dispersed carbon nanofibers: An efficient catalyst for wet air oxidation of industrial wastewater in a recycle flow reactor. ***Journal of Industrial and Engineering Chemistry*** 2018, 67, 448-460**. (Impact factor: 5.278)**

[7] **Yadav A**, Verma N. Enhanced hydrogen storage in graphitic carbon micro-nanofibers at moderate temperature and pressure: Synergistic interaction of asymmetrically-dispersed nickel-ceria nanoparticles. ***International Journal of Hydrogen Energy*** 2017, 42, 27139-27153. **(Impact factor: 4.939)**

[8] Mishra S, **Yadav A**, Verma N. Carbon gel-supported Fe-graphene disks: Synthesis, adsorption of aqueous Cr(VI) and Pb(II) and the removal mechanism. ***Chemical Engineering Journal*** 2017, 326, 987-999. **(Impact factor: 10.652)**

[9] **Yadav A**, Faisal M, Subramaniam A, Verma N. Nickel nanoparticle-doped and steam-modified multiscale structure of carbon micro-nanofibers for hydrogen storage: Effects of metal, surface texture and operating conditions. ***International Journal of Hydrogen Energy*** 2017, 42, 6104-6117. **(Impact factor: 4.939)**

[10] Gupta S, **Yadav A**, Singh S, Verma N. 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*** 2017; 56:1233-1244. **(Impact factor: 3.573)**

[11] Gupta S, **Yadav A**, Verma N. Simultaneous Cr(VI) reduction and bioelectricity generation using microbial fuel cell based on alumina-nickel nanoparticles-dispersed carbon nanofiber electrode. ***Chemical Engineering Journal*** 2017, 307, 729-738. **(Impact factor: 10.652)**

[12] Khare P, **Yadav A**, Ramkumar J, Verma N. Microchannel-embedded metal-carbon-polymer nanocomposite as a novel support for chitosan for efficient removal of hexavalent chromium from water under dynamic conditions. ***Chemical Engineering Journal*** 2016, 293, 44-54. **(Impact factor: 10.652)**

[13] **Yadav A**, Teja AK, Verma N. Removal of phenol from water by catalytic wet air oxidation using carbon bead-supported iron nanoparticle-containing carbon nanofibers in an especially configured reactor. ***Journal of Environmental Chemical Engineering*** 2016, 4, 1504-1513. **(Impact factor: 4.30)**

CONFERENCE PRESENTATIONS AND PROCEEDINGS

[1] **Yadav A**, Verma N. Center for Environmental Science and Engineering (CESE) IN-HOUSE SYMPOSIUM, January 20, 2018, IIT Kanpur, Kanpur, India.

[2] **Yadav A**, Verma N. Enhanced hydrogen generation in microbial electrolytic cell with carbon nanofiber-containing 3D Ni-carbon micropillars as electrodes. 2017 International Conference on Nanomaterials and Biomaterials (ICNB 2017), December 11-13, 2017, **Amsterdam, Netherlands**.

[3] **Yadav A**, Kumar A, Verma N, Basak K. Treatment of industrial wastewater using copper-doped carbon-beads in an especially configured reactor. ChEmference-2016, 3-4 December, 2016, **IIT Gandhinagar, Ahmedabad, India**.

[4] **Yadav A**, Verma N. Nickel nanoparticles-doped carbon micro-nanofibers for hydrogen storage. International Conference on Recent Trends in Engineering and Material Sciences (ICEMS-2016), 17-19 March, 2016, **Jaipur National University, Jaipur, India**.

[5] Gupta S, **Yadav A**, Verma N. Nickel nanoparticles-based carbon electrode for the simultaneous reduction of Cr(VI) and bioelectricity generation in a microbial fuel cell. International Conference on Recent Trends in Engineering and Material Sciences (ICEMS-2016), 17-19 March, 2016, **Jaipur National University, Jaipur, India**.

[6] **Yadav A**, Teja AK, Verma N, Basak K. Removal of organic pollutants from wastewater by catalytic wet air oxidation process using metal catalyst-doped carbon micro-beads and carbon micro-nanofibers in an especially configured reactor. 7th European Meeting on Chemical Industry and Environment, 10-12 June, 2015, **Tarragona, Spain**.

[7] Teja A, **Yadav A**, Verma N. Catalytic wet air oxidation of wastewater using novel carbon-based materials in-situ dispersed with transition metal nanoparticles. 3rd Water Research Conference, 11-14 January, 2015, **Shenzhen, China**.

AWARDS AND ACHIEVEMENTS

- Ph.D. Fellowship - MHRD (Govt. of India), Duration: August, 2013-July, 2018
- GATE Fellowship - MHRD (Govt. of India), Duration: August, 2011-June, 2013
- International Travel Grant - Dean, Resources & Alumni, IIT Kanpur, December, 2017 (in top two students selected from the department)
- International Travel Grant - Dean, Resources & Alumni, IIT Kanpur, January, 2015

TECHNICAL EXPERTISE

***Instruments operated*:** Gas chromatography (Trace 1110, Thermo Fisher Scientific, USA), High performance liquid chromatography (Varian, USA), BET surface area analyzer (Autosorb-1C, Quantachrome, USA), Atomic absorption spectroscopy (AA-420, Varian, USA), Fourier-transform infrared spectroscopy (Tensor-27, Bruker, USA), UV-Vis spectroscopy (Cary-400, Varian, USA), Thermo gravimetric analyzer (Mettler Toledo, USA), Particle size analyzer (Microtrac, USA), Autolab (Metrohm, Netherlands), Laser ablation (Epilog laser, Fiber Mark Fusion, USA), Conductivity measurements (Keithley Instruments Ltd., USA)

Software: Microsoft Office (Word, Excel, PowerPoint), Origin Lab, Minitab, Corel Draw, Matlab

WORK EXPERIENCE

- **December 2020 - till date**
  Assistant Professor, Department of Chemical Engineering, Indian Institute of Technology Roorkee

  Course: Elastomers Processing and Engineering
  Lab: Reaction Engineering

- **March 2019 - December 2020**

Assistant Professor, Department of Chemical Engineering, Indian Institute of Technology (Indian School of Mines) Dhanbad

Courses: 1) Chemical Engineering Thermodynamics-I (UG)
2) Process Equipment Design (UG)
3) Nanotechnology (PG)
4) Energy Resources and Utilization (UG)
5) Process Plant Design and Economics (UG)
6) Unit Operations for Pharmaceutics (PG)

Labs: 1) Computational Tools for Chemical Engineers (UG)
2) Computational Techniques Lab (PG)
3) Excursions (UG)

- **December 2018 - March 2019**

Senior Research Fellow, Centre for Environmental Science & Engineering, Indian Institute of Technology Kanpur

Supervisor: Prof. Nishith Verma

- **October 2010 - July 2011**

Hindustan Zinc Limited, Vedanta Resources, Rajasthan

Position: Graduate Engineer Trainee

SUMMER INTERNSHIP/PROJECTS

- R&D project titled "Catalytic wet air oxidation of SMPO wastewater" sponsored by Shell Technology Centre Bangalore, India in collaboration with their team in Netherlands (Position - Senior Student Research Associate)

- 6 weeks industrial training at Indian Oil Corporation Limited, Panipat Refinery on Sulphur Recovery Unit, June 2009 - July 2009

- B. Tech. Project:

  Title: “Adhesion Washcoat testing using Chemical Reaction” under the guidance of Prof. D. Kunzru, Department of Chemical Engineering, IIT Kanpur

- Short Course: “Plasma Basics and Industrial Applications” organized by Department of Chemical Engineering, IIT Kanpur

POSITIONS OF RESPONSIBILITY & EXTRA CURRICULAR ACTIVITIES

- TA for DST-FIST sponsored BET instrument (CESE, IIT Kanpur)
- TA for unit operation lab (UOP lab, Department of Chemical Engineering IIT Kanpur)
- TA for AAS instrument: Agilent-GTA120 and Agilent-AA240FS (PGRL, Department of Chemical Engineering, IIT Kanpur)
- Served as student representative of Departmental Postgraduate Committee (DPGC) for EEM Department 2011 batch, IIT Kanpur

Declaration: I hereby declare that the aforementioned information is true to the best of my knowledge and belief.

(Ashish Yadav)