

Dr. Renu

• Vadodara, Gujarat, INDIA • (+91)6375526067 •
• researchrenu@gmail.com • <https://www.linkedin.com/in/dr-renu-bisht-2a9351129/>

Google scholar profile:

<https://scholar.google.co.in/citations?user=IISMP9kAAAAJ&hl=en>

SUMMARY

Creative and hardworking, Chemical Engineering graduate with 6+ years of experience in Designing and Synthesizing catalysts, modelling and simulation, Development of cost-effective processes, Olefin production, Petrochemicals, Energy and Environment, Water pollution management, wastewater treatment, Heavy metals removal, Adsorbent development, Adsorbent characterization and Design of Experiments. She has published 11 research papers in SCI and reputed Journals. She is also a book author and published bookchapters. She is skilled in various Programming Languages i.e MATLAB, Mathematica and expert in Aspen Plus®, Minitab, ImageJ, COMSOL Multiphysics®, LATEX, OriginPro.

She has worked on various instruments such as Gas chromatography (GC), atomic absorption spectrophotometer (AAS), and ultra-visible spectrophotometer (UV-S).

RESEARCH INTEREST

Design, synthesis and characterization of catalyst • Mathematical Modelling • Wastewater treatment • Adsorbent development • Adsorbent characterisation • Heavy metals removal • Design of Experiment & Modeling and simulation • Conversion of syngas into olefin

EDUCATION

DOCTOR OF PHILOSOPHY in Chemical Engineering, Dept. of Chem. Eng. Malaviya national Institute of Technology, Jaipur, India 2020
Research area: Wastewater treatment

"Adsorptive Removal of Copper, Cadmium & Chromium from Waste Water: Modelling & Experimental Study"

MASTER OF TECHNOLOGY in Chemical Engineering, Aligarh Muslim University, Aligarh (U P), India 2014
CGPA: 9.27 • First Class Honours and Gold medalist
Research area: Catalysis

"Modelling and Simulation of Reaction Diffusion Process in a Porous Catalyst: Evaluation of Effectiveness Factor"

BACHELOR OF TECHNOLOGY in Chemical Engineering, IET MJPRU, Bareilly, India 2012

CGPA : 8.64 • First Class with honours

EXPERIENCE

ASSISTANT PROFESSOR, Dept. of Chem. Eng, Parul University, Vadodara, Gujarat, INDIA November 20, 2021 — Present

Courses taught: • Petrochemical technology • Chemical engineering plant design and economics • Process synthesis • Thermodynamics • Chemical reaction engineering

ASSISTANT PROFESSOR, Dept. of Chem. Eng, Marwadi university, Rajkot, Gujarat, INDIA June 28, 2021 — October 30, 2021

Courses taught: • Advanced separation techniques • Fluid flow operations • Safety in Chemical industries • Instrumentation and process control

RESEARCH ASSOCIATE, Dept. of Chem. Eng. CSIR-Indian institute of petroleum, Dehradun, INDIA, 1 July 2019 — 28, February 2020

- *Worked on project "Development of catalyst and alternate process for light olefins from syngas"- (MLP-1091).*
- *Designed, synthesised and characterized catalyst for conversion of syngas into olefin. Learned and explored Flowsheeting, kinetics and mechanistic study for conversion.*
- *Pilot plan design, operation of high pressure fixed bed /Batch mode reactors, able to handle pilot scale reactor unit using SCADA. Also the understanding the project work, the strategies and plans required for a project and developed the capability of working together and guiding*

PUBLICATIONS

Peer-Reviewed International Journals

- Renu, Agarwal, M., & Singh, K (2016). "Heavy metal removal from wastewater using various adsorbents: a review". **Journal of Water Reuse and Desalination**, 7(4), 387-419.
- Renu, Agarwal, M., & Singh, K (2017). "Removal of copper, cadmium and chromium from wastewater by modified wheat bran using Box- Behnken design: kinetics and isotherm". **Separation Science and Technology**, 53(10), 1-14.
- Renu, Agarwal, M., Singh, K, Upadhyaya, S., Dohare, R.K. (2017). "Removal of heavy metals from wastewater using modified agricultural adsorbents". **Materials Today: Proceedings**, 4(9), 10534-10538.
- Agarwal, M., Dubey, S., & Renu. (2019). "Synthesis and Characterization of nZVI Grafted Alumina and Its Application for Fluoride Removal from Drinking Water:

Equilibrium and Kinetics Study”. **Periodica Polytechnica Chemical Engineering**, 63(1), 73-84.

- Renu, Agarwal, M., Singh, K & Gupta, R. (2019). “Continuous fixed bed adsorption of heavy metals using bio-degradable adsorbent: modelling and experimental study”. **Journal of Environmental Engineering**, 146(2), 1-14.
- **Renu**, Agarwal, M., & Singh, K (2017). “Methodologies for removal of heavy metal ions from wastewater: an overview”. **Interdisciplinary Environmental Review**, 18(2), 124-142.
- **Renu**, Agarwal, M., & Singh, K (2015) , "Removal of Chromium from Waster Water using Agricultural Waste: A Review" **ISST Journal of Applied Chemistry**, ISSN: 0976- 7355, 6(7), 7-10.
- **Renu**, Agarwal, M., & Singh, K., Dohare R.K., Upadhyaya, S. (2016), "Process Control and Optimization of Wastewater Treatment Plants Using Simulation Softwares", **International Journal of Advanced Technology and Engineering Exploration** 3(22), ISSN: 2394-7454.
- **Renu**, Agarwal, M., & Singh, K (2016), “A survey of modified agricultural wastes for heavy metal removal from wastewater”, **International Journal of Engineering Sciences & Research Technology**, 5(12), 1014-1018.
- **Renu**, Agarwal, M., & Singh, K (2017), “Removal of Chromium from Wastewater using Activated Carbon as an Efficient Adsorbent”, **International Journal of Engineering Technology Science and Research**, 4(6), ISSN 2394 — 3386.
- **Renu**, Agarwal M., Singh K., Pandey G., “Physico-chemical characterization of Industrial effluents collected from industrial area of Jaipur and Kanpur cities” (**AIP Proceedings**) (**Under review**).
- Bisht, K. & Renu.(2016), Bagasse power, an untapped potential in India — A Review, **International Journal of Engineering Sciences & Research Technology**, 5(12), 2277-9655.
- Renu, Agarwal, M., Singh, K (2020). “Simultaneous removal of heavy metals and dye from wastewater: Modelling and Experimental study”, **The Canadian Journal of Chemical Engineering**. (**Under review**).
- Renu, Agarwal, M., Singh, K (2020). “Experimental study of competitive heavy metals removal from multimetal solution using wheat bran: Response surface methodology”, **Environmental science and pollution research**. (**Under review**).
- Renu & Bisht, K. (2020). “Do Heavy metals induces COVID 19?”, “**Evergreen: Joint Journal of Novel Carbon Resource Sciences & Green Asia Strategy**” (**Under review**).

Peer-Reviewed International/National Conferences

- **Renu**, Madhu Agarwal and Kailash Singh " Removal of Chromium from Waster Water using Agricultural Waste: A Review” , “International Conference on Green **Initiatives in Science and Technology**” held at Manav Rachna College of Engineering, Faridabad, on 15 January 2015.
- **Renu**, Agarwal M., Singh K., “Removal of heavy metals from wastewater using modified agricultural adsorbents”, “International Conference on Recent Trends in

Engineering and Material Sciences” held at Jaipur National University, Jaipur, Rajasthan, on 17-19 March 2016.

- **Renu**, Agarwal M., Singh K. “Methodologies for removal of heavy metal ions from wastewater: An overview”, “International conference on New and Renewable energy resources for sustainable future held at Swami Keshvanand Institute of Technology Management & Gramothan, Jaipur, Rajasthan, on 02-04 February 2017.
- **Renu**, Agarwal M., Singh K., “Removal of Chromium from Wastewater using Activated Carbon as an Efficient Adsorbent”, “International conference on New frontiers of engineering, science, management and humanities”, held at NITTTR, Sec - 26 Chandigarh (MHRD), on 11 June 2017.
- **Renu**, Agarwal M., Singh K., “Process Control and Optimization of Wastewater Treatment Plants Using Simulation Softwares”, “National conference on Process Automation and Control”, held at Malviya National Institute of Technology, Jaipur, Rajasthan, on 28-29 May, 2016.
- **Renu**, Agarwal M., Singh K., “Chromium removal by using modified agricultural wastes”, “**National conference on frontiers in research and development in Agriculture, Biomedical, Chemical and pharmaceutical science**” held at Mewar university, chittorgarh, Rajasthan on 4 march, 2016.
- **Renu**, Agarwal M., Singh K., “Continuous fixed bed adsorption of heavy metals by modified wheat bran : An experimental and modeling study” ,International conference on advances in science & technology “held at Swami Keshvanand Institute of Technology Management & Gramothan, Jaipur, Rajasthan on May 4-5, 2018.
- **Renu**, Agarwal M., Singh K., “Adsorption of ternary metal system in continuous fixed bed column using bio-degradable adsorbent”, **CHEMCON (2019)**, held at NIT, Jalandhar on Dec 27-30, 2019.**Renu**, Mohd. Danish., “Estimation of effectiveness factor in a porous catalyst slab”,**CHEMCON (2014)**”, held at Punjab university, Chandigarh, on 27-30 December.
- Attended “Conference on Advanced Materials and Processing organized by MNIT, Jaipur on 2- 4 Dec, 2015.
- **Renu**, Madhu Agarwal, Kailash Singh., “Adsorptive removal of heavy metals from Industrial effluents in a Fixed bed reactor”, International Conference on Biotechnology for Sustainable Agriculture, Environment and Health (BSAEH-2021) jointly organized by Malaviya national institute of technology, Jaipur and the biotech research society, India at Jaipur, India on April 04-08, 2021.
- **Renu**, Agarwal M., Singh K., Pandey G., “Physico-chemical characterization of Industrial effluents collected from industrial area of Jaipur and Kanpur cities”, “ICAMTAAI 2021”, held at graphic era dehradun, uttarakhand, india on 6- 7 August, 2021.

TECHNICAL SKILLS

• MATLAB •Mathematica •Aspen Plus® •Minitab •ImageJ • COMSOL Multiphysics®
LATEX •OriginPro • Microsoft Office • Microsoft Excel • Research & Development •
• Mathematical Modelling • Leadership • Teaching • Project Management • Technical
Writing • Hindi • English

AWARDS

- *Gold medalist* in M.Tech. (Chemical Engineering) at Aligarh Muslim University (AMU), Aligarh in 2014.
- Received MHRD and TEQIP Scholarship during Ph.D. (2014-2018) and M.Tech (2012-2014).
- Awarded by Insc **Young** Researcher Award by Institute of scholars, Karnataka, India in 2020.
- Awarded by “Excellence award for women researcher” category by Nation education Brilliance Awards (NEBA) I can Foundation, Jaipur, India in 2021.
- Research paper “Heavy metal removal from wastewater using various adsorbents: a review”, 7(4), 387-419 stands among the most read and cited research paper of “**Journal of Water Reuse and Desalination**” from Dec 2017 - present.
- Research paper “Removal of heavy metals from wastewater using modified agricultural adsorbents”. **Materials Today: Proceedings**, 4(9), 10534-10538 is in the list of most cited materials today: proceedings (Elsevier) published since 2017.
- Research paper “Process control & optimization of Wastewater Treatment plants using simulation softwares: A review” Re-print by **WATER TODAY: THE MAGAZINE**, Page no. 24-29 in September - 2019 issue

BOOK

- Renu & Mohammad Danish (2021) “Estimation of Effectiveness Factor in a Porous Catalyst Slab” published by Lambert Academic Publishing.

BOOK CHAPTER

- Renu (2020) “Strategies towards sustainable management of organic waste: Modelling & Simulation” for the book edition entitled “Techno-economics and Life Cycle Assessment of Bioreactors: Post-covid 19 Waste management approach” to be published by Elsevier (**ISBN-607473**) (Under review)

INVITED TALK

- Invited for expert talk on “**Purification of industrial effluents using eco-friendly adsorbents: Challenges and future perspectives**”, Conducted by Department of Mechanical Engineering, Sobhasaria Group of institutions, Sikar, Rajasthan on 31 July 2021.

MEMBERSHIP OF PROFESSIONAL BODIES

- Associate member of Indian Institute of Chemical Engineers (LAM — 52068)
- Asian PGPR Society of Sustainable Agriculture USA EIN 47-4803807 &

Alabama,USA: 1309/490

- Member of Institute of scholars (Insc), India.

WORKSHOP/TRAINING/e-COURSES ATTENDED/FDP

- Participated in workshop on “LATEX for research” organized by Department of Mathematics, MNIT Jaipur, India from July 23-24, 2018.
- Short Term Course on “Nano forms of carbon” organised by Materials Research Centre, MNIT Jaipur, India from March 19-23, 2018.
- Participated in national symposium on “Water Purification & Reject Management-2016” organised by Department of Chemical Engineering, MNIT, India on 12 November, 2016.
- Participated in workshop on “Community Water Purification Plants in Quality Affected Habitations of Rajasthan: Issues, Challenges & Way Forward” organised by Department of Civil Engineering, MNIT Jaipur, India on July 27, 2017.
- Participated in workshop on “Storage & Safety of Explosives & Petroleum Products” organised by Department of Chemical Engineering, MNIT Jaipur, India on December 4-5, 2015.
- Participated in course on “COMSOL MULTIPHYSICS” organised by Materials Research Centre MNIT Jaipur, India on November 27-28, 2014.
- Participated in Faculty Development Program on “Municipal Solid Waste Management” organised by Department of Chemical Engineering, Mahatama Jyotiba Phule Rohilkhand University, Bareilly, India from December 7-11, 2016.
- Participated in five days workshop on “Characterization techniques for high performance materials” organised by MNIT, Jaipur in association with university of Saskatchewan, Canada on July 25 -29, 2015.
- Participated in two days workshop of “process modelling and simulation” organized by Department of Chemical Engineering Z.H. College of Engineering and Technology, Aligarh Muslim University, Aligarh on September 23-24, 2013.
- Participated in one day national symposium on “nanotechnology for chemical applications” organized by Department of Chemical Engineering and centre of excellence in materials science (Nanomaterials) Department of applied physics, Z.H. College of Engineering & Technology, Aligarh Muslim University, Aligarh on February 27, 2013.
- Participated in five days workshop of “MATLAB Fundamentals” organised by Z.H. College of Engineering and Technology, Aligarh Muslim University, Aligarh on Sep 20-22, 2013.
- Participated in three day program conducted by Equinox Software & Services Private Limited of “Steady State Modelling using Aspen Plus” organised by Z.H. College of Engineering and Technology, Aligarh Muslim University, Aligarh on October 11-13, 2013.
- Participated in AICTE Training and Learning Academy Online FDP on "Waste Technology" from 2021-1-18 to 2021-1-22 at National Institute of Technology Durgapur.
- Participated & completed successfully AICTE Training and Learning Academy Online

FDP on "Green Technology & Sustainability Engineering" from January 11-15, 2021 at Motilal Nehru National Institute of Technology Allahabad.

- Participated & completed successfully AICTE Training and Learning Academy Online FDP on "Novel Materials" from February 08-12, 2021 at National Institute of Technology Patna.
- Participated in one week online Short Term course on "Renewable Energy & Effluent Treatment (REET-2021)" from March 01-05, 2021, Organised by Department of Chemical Engineering, Institute of Engineering & Technology, Lucknow, Uttar Pradesh.
- Participated in National symposium "Shaping the Energy Future: Challenges and Opportunities (SEFCO)" on August 27, 2021, Organised by CSIR - Indian Institute of Petroleum, Dehradun, Uttarakhand Theme: Zero-emission Energy Alternatives.
- Participated in one day international webinar on "Sustainable Development Goals & Chemical Engineering" on September 18, 2021, Organised by Department of Chemical Engineering, Marwadi University, Rajkot, Gujarat.

RESEARCH WORK

- Doctoral Work:

Title Adsorptive Removal of Copper, Cadmium & Chromium From Waste Water: Modelling & Experimental Study

- Masters Work:

Title: Modelling and Simulation of Reaction Diffusion Process In A Porous Catalyst: Evaluation of Effectiveness Factor"

- B.Tech Projects Guided:

1. Ashiti yadav, Yash vaghela, Hej adroja, Meet zinzuvadiya, Heavy metal removal from wastewater using modified biomass, (2021)
2. Mihir Halavadiya, Mohit Kapadiya, Parth Likhiya, Keyur Goriya, Tarpan Kyala, Removal of metals from metal complex dyes using agricultural waste, (2021)
3. Yash modi, Rishikhesh sharma, Vaibhav vyas, Heavy metal removal from industrial effluents (2021)

INDUSTRIAL EXPERIENCE:

- Industrial Attachment of 45 days at IFFCO, Aonla, Bareilly, U.P. in Urea production.
- Production of sugar at Kesar Enterprises Ltd Baheri, (Bareilly) U.P.

PROFESSIONAL ACTIVITIES

- Reviewer of an international Journal "Environmental science and pollution research".
- Reviewer of "Asian Journal of Applied Chemistry Research".
- Reviewer of "International Journal of Basic and Applied sciences".

- Contributed as a member of student organizing committee of “Indian society of theoretical and applied mechanics: An international Conference”, organised by Department of Mechanical Engineering. MNIT Jaipur on 16-19 December, 2015.