Curriculum Vitae

Dr. Ankit Kumar

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Department of Chemical Engineering
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PERSONAL DETAILS

Date of Birth	: October 1st 1987
Nationality	: Indian
Gender	: Male
Marital Status	: Married
Language known	: Hindi, English

Achievements

- Member of the organizing team for the 7 days 'Human Value & Professional Ethics' organized by GBTU at IIT Kanpur from15 to 21 Dec 2010
- Active member of council for organizing various cultural events and annual fest at institute at Graduate level
- GATE 2007 - Graduate Aptitude Test in Engineering is Qualified in Chemical Engineering.
- Editorial Board Member in the "**Journal of Technology Innovations in Renewable Energy".**

Educational Qualification

- Jan 2014 – September 2020 (**Ph.D**. in Chemical Engineering): From Indian Institute of Technology (BHU), Varanasi, under the guidance of Prof. A. S. K. Sinha (Currently Director at Rajiv Gandhi Institute of Petroleum Technology Jais Amethi, India)

PhD title: "*Studies on Hydrogen Production by Steam Reforming of Acetic acid on MOFs derived Nickel Catalysts for Utilization of Biomass*"

- **August 2007 - July 2010** (**M.Tech** in chemical engineering): From Harcourt Butler technological Institute (Currently HBTU), UP, India with first division

- **August 2003- June 2007 (B. Tech** in chemical Engineering); From University Institute of Technology (Affiliated to Chhatrapati Sahuji Maharaj University Kanpur, India) with first division
- **Intermediate (2002)** from U.P. Board, Allahabad with second division
- **High School (2000) from** U.P. Board, Allahabad with first division

AWARDS/ FELLOWSHIP

- Qualified Graduate Aptitude Test in engineering (**GATE**) in 2007
- Awarded MHRD fellowship during the M.Tech Programme (2 years)
- Awarded MHRD fellowship during the Ph.D. Programme (5 years)
- Obtained International Travel support grant of 1.5 Lakh for Paper presentation at Auburn University, Alabama USA.

Research Experience

1. Organization: Indian Institute of Technology, Kanpur, India
    - Senior Project Associate from Aug 2012 – Oct 2012
2. Organization: Indian Institute of Technology (BHU) Varanasi, India
    - Junior research fellow (MHRD- JRF) from Jan 2014-Dec 2016.
    - Senior research fellow (MHRD- SRF) from Jan 2017 to Dec 2018.
3. Organization: Rajiv Gandhi Institute of Petroleum Technology, Jais Amethi, India
    - Asst. Engineer at Central Research facility laboratory from Oct 2019-July 2020.

Job Profile

1. **July 2010 to Jan 2011, Designation:** Quality control engineer at RSPL Ltd Kanpur.
   Responsibility: Develop, apply and maintain quality requirements and standards for development and manufacturing products. Analyzing manufacturing processes for improvement using various methods of testing and inspection.

2. **FEB. 2011-JUNE 2012 & AUG 2013 TO MAY 2013, Designation:** Guest Lecturer at Harcourt Butler Technological University Kanpur.
   Responsibility: Teaching Chemical Course like Fluid Mechanics, Process calculation, Instrumentation & Process Control at B.Tech Level, Lab in charge of Instrumentation and Process Control Lab.

3. **Currently working as Guest Faculty at** Dr**.** Ambedkar Institute of Technology for Handicapped (AITH) Kanpur from **Oct 2020- till date**
   Responsibility: Teaching Chemical Course like Mass Transfer, Transport Phenomenon. Universal Human Values at undergraduate level.

Experimental Skill

- Knowledge and expertise in small-scale and bulk synthesis of heterogeneous catalysts, microporous/ mesoporous (such as, γ-Al2O3 and supported catalysts, MOFs catalysts.)

- Knowledge and expertise in small-scale and bulk synthesis of various catalysts preparation methods of heterogeneous catalysts (such as sol-gel, impregnation, MOFs hydrothermal method)
- The three main Parameters of the hydrotreating catalysts that we studied for synthesised mesoporous catalysts:
    - ✓ Textural properties
    - ✓ Nature of the active phase (Ni/Al_2O_3, Ni-complex/Al_2O_3, Ni/Al_2O_3-La_2O_3-CeO_2, bimetallic catalyst)
    - ✓ Expertise in carrying out vapor-phase and liquid phase heterogeneous catalytic acidic/basic/ steam reformig reactions using above materials and evaluation of the reaction mechanism, kinetics, conversion, selectivity, yield etc.
    - ✓ Expertise in setting-up lab scale experimental set-ups for gas-phase and liquid phase reactions. Routinely used high/low pressure flow and batch reactors.
    - ✓ Routinely used and set-up rotary-evaporators, vacuum distillation unit, inert chambers, various types of heating furnace, multitasking titration system for the reproducible preparation and modification of catalysts.

Technical skill

- Expertise especially in operation of BET adsorption-desorption, Temperature Programmed Desorption (TPD)/ Temperature Programmed Reduction (TPR), Gas Chromatography, Particle Size analyzer, GC/MS, and CHNS analyzer. These analytical tools have been routinely used to evaluate the synthesized materials and reaction products very much.
- Also familiar with some other analysis tools like Powder XRD, FE-SEM, TEM, Temperature Gravimetric Analysis/ Differential Thermal Analysis etc.

List of Publications

Manuscript submitted or under preparation

1. Ankit Kumar, Kumar Vikrant, Ki Hyun Kim: Acetic acid steam reforming over MOF-based nickel catalysts supported on γAl_2O_3–La_2O_3–CeO_2: Effect of active nickel species and reaction temperature on hydrogen production Manuscript is Under Review in Journal of Cleaner Production JCLEPRO-D-22-00354.
2. Saba Shirin, Akhilesh Kumar Yadav, Ashutosh Mishra, Ankit Kumar* Particulate matter and management regarding ambient air pollution surrounding coal-based thermal power plants and opencast coal mines, Communicated in Chemical and Process Engineering: PAN, 2021(Under Review)
3. Ankit Kumar*,Akhilesh Kumar Yadav, Ravi Kumar Sonwani, Dharmendra Pandey, Anurag Kumar Tiwari, Investigations of Coke deposition nature and properties with the correlations of acidic sites over nickel supported catalysts in steam reforming of acetic acid Communicated in Chemical Engineering & Technology, 2022 ceat. 202200012.

Manuscript accepted/Published

1. Ankit Kumar, J.P. Chakraborty & Rupesh Singh (2016): Bio-oil: the future of hydrogen generation, Biofuels Journal, ISSN: 1759-7269.
2. Kedar Sahoo, Ankit Kumar, and J.P. Chakrabroty, 2020. A comparative study on valuable products: bio-oil, bio-char, non-condensable gases from pyrolysis of agriculture residues. Accepted in Journal of Material Cycles and Waste Management. 23 (1), 186-204.
3. Ankit Kumar, Rupesh Singh, & A. S. K. Sinha, 2019: Catalyst modification strategies to enhance the catalyst activity and stability during steam reforming of acetic acid for Hydrogen production. Int J Hydrogen Energy 44 (2019) 12983 -13010.
4. Ankit Kumar, A. S. K. Sinha, 2020: Comparative study of hydrogen production from steam reforming of acetic acid over synthesized catalysts via MOF and wet impregnation methods. Int J Hydrogen Energy. 45 (2020) 11512 -11526.
5. Ankit Kumar, A. S. K. Sinha, 2020: Hydrogen production from acetic acid steam reforming over nickel based catalyst synthesized via MOF. Int J Hydrogen Energy.45 (2020) 24397-24411.
6. Walid Nabgan, Aishah Abdul Jalil, Bahador Nabgan, Muhammad Ikram, Mohamad Wijayanuddin Ali, Ankit Kumar, Parashuram Lakshminarayana, 2021: A state of the art overview of carbon-based composites applications for detecting and eliminating pharmaceuticals containing wastewater. Chemosphere. 2022, 288(2), 132535.
7. Walid Nabgan, Bahador Nabgan, Anwar-Ul-Hamid, Alberto Coelho, Muhhamad Ikram, Laxminarayan Parashuram, Ankit kumar, Arvind H. Jadhav, Hyungseok Nam: Synthesis and catalytic properties of CaO obtained from organic ash overTNPs nano-catalysts for biodiesel production from dairy scum: Chemospehere, 2022 290, 133296.

Book Chapter:

8. D. Patel, M. Kulwant, S. Shirin, A. Kumar, M.A. Ansari, A.K. Yadav. Artificial Intelligence for Air Quality and Control Systems: Status and Future Trends. In Maurya, et al. (Ed.). Modeling and Simulation of Environmental Systems: A Computation Approach (ISBN: 9781032066981). Taylor & Francis Group – Accepted (Book Chapter)
9. A. Kumar, S. Shirin, M.I. Ansari, G. Pandey, S.N. Sharma, A.K. Yadav. Fuzzy and Neural Network Model based Environmental Quality Monitoring System: Past, Present, and Future. In Maurya, et al. (Ed.). Modeling and Simulation of Environmental Systems: A Computation Approach (ISBN: 9781032066981). Taylor & Francis Group – Accepted (Book Chapter)

Paper/Poster Presented in Conference

1. Presented paper in CHEMCON "***Steam reforming of bio-oil model compound for production of Hydrogen using stabilized Pt/Al_2O_3/La_2O_3/CeO_2 Catalyst*** December 25-26, 2015 Organized at Indian Institute of Technology Guwahati.
2. Presented poster in Institute day **"*Studies on the Hydrogen Production from Bio-Oil*** conducted by Department of Chemical Engineering Indian Institute of Technology, BHU, Varanasi in 25-26th January 2015.

3. Presented poster in Institute day **"*Pyrolysis of Lignocellulosic biomass in a fixed bed reactor for the production of bio-oil***" conducted by Department of Chemical Engineering Indian Institute of Technology, BHU, Varanasi in 26-27th February 2016
4. Presented poster in Institute day **"Effective Gasification Through Torrefied Biomass**" conducted by Department of Chemical Engineering Indian Institute of Technology, BHU, Varanasi in 25-26th February 2017
5. Presented poster in TCS symposium "***Sustainable hydrogen production from catalytic steam reforming of Acetic acid as model oxygenate of bio-oil using MOF derived nano Ni/ALC catalyst***" held in AUBURN University Alabama, USA 2018, Oct 8-10
6. Presented paper in MECS international conference **"*Renewable Hydrogen production from acetic acid steam reforming over a Ni catalyst supported on modified support ($Al_2O_3/La_2O_3/CeO_2$)"*** October 18 to 20, 2018, held in Indian Institute of Technology (BHU), Varanasi
7. Presented poster in 5th National Symposium on Shaping the Energy Future: Challenges and Opportunities on "**Effects of nickel loading on a metal-organic framework derived catalyst in hydrogen production via steam reforming of acetic acid" August 2021,** held at CSIR- Indian Institute of Petroleum, Dehradun- Uttarakhand

Workshops/Seminar attended

1. Participated in 13 days INTENSIVE COURSE' 15, on ***Advances in Preparation & Characterization of Heterogeneous Catalysts*** held by the Department of Chemical Engineering & Technology, IIT(BHU), Varanasi
2. National Symposium on ***Research Methodology for future Researchers*** (RMFR-2015) March 22nd, 2015, Organised by TLC, IIT (BHU), Varanasi.
3. **Environmental Management And Current Practices in Mining & Allied Industries** conducted by Department of Mining Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi (U.P.) in 13-15th February 2014.
4. One day workshop on **"Inclusion in smart city Planning of India of Renewable energy & Energy efficiency (InSPIRE)"** conducted by, Department of Chemical Engineering & Technology, IIT BHU, Varanasi on 25th March 2017.
5. **Participated 6th *International Conference on Human Values in Higher Education*** held at Indian Institute of Technology, Kanpur from 10 -12th Feb 2017.
6. **Participated in** the AICTE sponsored short term course & continuing education program on ***Electron Microscopy & Microanalysis of Materials*** **(EMMM 2018)** from **February 12 - 17, 2018**, jointly organized by Department of Metallurgical Engineering, Indian Institute of Technology (BHU), Varanasi and Electron Microscope Society of India (EMSI)
7. **Participated in 6 days intensive course on *MaTLaB*** organized by Society of Chemical Engineer, department of Chemical Engineering IIT (BHU) Varanasi.
8. Participated online one week ATAL-FDP on **"Energy conversion and Storage devices"** conducted by Indian Institute of Technology, Hyderabad from 01 June-05 June 2021

9. Participated online one week FDP on "**Modern Innovations in Chemical Engineering and Technology (MICET 2021)"** conducted by HBTU, Kanpur from 09 to Aug 13 2021.
10. Participated online one week ATAL-FDP on "**Alternative fuels: Biofuels**" from 04/10/2021 to 08/10/2021 at P D A College of Engineering Kalaburagi.
11. Participated online one week ATAL-FDP on "**Biomass to fuels, Chemicals and value-added products for sustainable energy and environmental future Energy Engineering Engineering**" from 20/12/2021 to 24/12/2021 at National Institute of Technology, Tiruchirappalli.

References

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