

Biodata

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- Institution** Indian Institute of Technology Bombay, Mumbai
- Date of Birth** 19/12/1981
- Gender** M
- Academic Qualification**

Sl.No.	Degree	Year	Branch/Discipline	University/Institution
1	B.Tech	2003	Mechanical Engineering	National Institute of Technology, Silchar, Assam
2	PhD	2016	Renewable Energy	Indian Institute of Science (IISc), Bangalore

8. Work experience

Sl. No.	Designation	Name of the Institute/Organization	From Month-year	To Month-year	Responsibility
1	Software Engineer	Infosys Technologies Limited, Bangalore	Feb 2004	June 2007	Software Analyst
2	Visiting Assistant Professor	Thapar University, Patiala	Sep 2015	Nov 2016	Faculty
3	Assistant Professor	Thapar University, Patiala	Nov 2016	May 2017	Faculty
4	Assistant Professor	IIT Bombay	June 2017	June 2023	Faculty
5	Associate Professor	IIT Bombay	June 2023	-till date-	Faculty

9. Professional Recognition/ Award/ Prize/ Certificate/Fellowship received

Sl.No.	Name of Award	Awarding Agency	Year
1	Spot Award	Infosys Technologies Limited, Bangalore	2006
2	Young Faculty Award	IIT Bombay	2017

10. Journal Publications

1. Shruti Vikram, Sujeetkumar P. Deore, De Blasio, C., Sanjay M. Mahajani, **Sandeep K.** Air gasification of high-ash solid waste in a pilot-scale downdraft gasifier: Experimental and numerical analysis. *Energy* 270 (2023) 126912
2. Sujeetkumar P. Deore, Gadkari P, Sanjay M. Mahajani, **Sandeep K.**, Sudarshan Kumar. Development of a new premixed burner for biomass gasifier generated low calorific value producer gas for industrial applications. *Energy* 279 (2023) 128140
3. Nishant Ranjan, Narendra Yadav, Harmanpreet Singh, **Sandeep K.**, Sanjay M Mahajani. Modelling and simulation of autothermal downdraft co-gasification of biomass and plastic wastes using Aspen Plus. *Energy Conversion and Management* 291 (2023) 117714
4. Harmanpreet Singh, Satish Kumar, Rakesh Mishra, Saroj Kumar Mohapatra, Amanpreet Singh, **Sandeep K.** Flow characteristics of microwave treated Indian coal: A deep learning modelling. *Advanced Powder Technology* 34 (2023) 104202
5. Sujeetkumar P. Deore, **Sandeep K.**, Sanjay M. Mahajani, Cataldo De Blasio. Co-gasification of sanitary napkin with sawdust biomass in downdraft gasifier for thermal applications: An experimental approach. *Energy* 276 (2023) 127562
6. Singh H, Rosha P, Cataldo D.B., Ibrahim H, **Sandeep K.** Synthesis of H₂-enriched syngas using waste pterospermum acerifolium fruits: Comparative analysis of oxidizing agents and their concentration. *Int. J. of Hydrogen Energy* (48) 28 (2023) 10452-10476
7. A. Fazil, **Sandeep K.**, Sanjay M. Mahajani. Gasification and Co-gasification of paper-rich, high-ash refuse-derived fuel in downdraft gasifier. *Energy* 263 (2023) 125659
8. Pali Rosha, **Sandeep K.**, Shruti Vikram, Hussameldin Ibrahim, Ala'a H. Al-Muhtaseb. H₂-enriched gaseous fuel production via cogasification of an algae-plastic waste mixture using Aspen PLUS. *International Journal of Hydrogen Energy* (47) 62, 2022, 26294-26302
9. Rosha P, **Sandeep K.**, Ibrahim H. Sensitivity analysis of biomass pyrolysis for renewable fuel production using Aspen Plus. *Energy* 247 (2022) 123545
10. Godwin Mong Kalu-Uka, Shubham K, Abraham C Kalu-Uka, Shruti Vikram, Gina O I, Nishant R, Esther N AF, Gaurav P, Anayo N, Azikiwe PO, **Sandeep K.** Production of Activated Carbon Electrode for Energy Storage Application in Supercapacitors via KOH Activation of Waste Termite Biomass. *Waste and Biomass Valorization* 13 (2022) 2689–2704
11. A. Fazil, **Sandeep K.**, Sanjay M. Mahajani. Downdraft co-gasification of high ash biomass and plastics. *Energy* 243 (2022) 123055
12. Shruti Vikram, Pali Rosha, **Sandeep K.**, Mahajani SM. Thermodynamic analysis and parametric optimization of steam-CO₂ based biomass gasification system using Aspen PLUS. *Energy* 241 (2022) 122854
13. Rosha P, **Sandeep K.**, P. Senthil Kumar, C.N. Kowthaman, S. K. Mohapatra, A. Dhir. Impact of compression ratio on combustion behavior of hydrogen enriched biogas-diesel operated CI engine. *Fuel* 310 (2022) 122321

14. Rosha P, **Sandeep K**, Ibrahim H. Thermodynamic equilibrium analysis of oxy-dry reforming of biogas with CO₂ sequestration using Aspen HYSYS. *Asia-Pacific Journal of Chemical Engineering*, (16) 2021, 2683
15. Rosha P, **Sandeep K** and Ibrahim H. A thermodynamic analysis of biogas-to-methanol conversion with CH₄ recycling and CO₂ utilization using Aspen HYSYS. *Sustainable Energy Fuels* 2021 (5) 4336-4345
16. Rosha P, Arshdeep K.R., Ibrahim H, **Sandeep K**. Recent advances in biogas upgrading to value added products: A review. *International Journal of Hydrogen Energy* 46(2021) 21318-21337
17. Shruti Vikram, Pali Rosha, **Sandeep K**. Recent Modeling Approaches to Biomass Pyrolysis: A Review. *Energy & Fuels* 2021 (35) 9, 7406–7433
18. Godwin M Kalu-Uka; **Sandeep K**; A C Kalu-Uka; Shruti Vikram; Okore O O; Moses Kigozi; Gina O I; Peter A O. Prospects for biodiesel production from *Macrotermes nigeriensis*: Process optimization and characterization of biodiesel properties. *Biomass and Bioenergy*. 2021 (146) 105980
19. **Sandeep K**, S. Dasappa. Modeling and analysis of single particle conversion of biomass in a packed bed gasification system. *Applied Thermal Engineering*. 2017 (112) 1382-1395
20. Mahapatra S, **Sandeep K**, Dasappa S. Gasification of wood particles in a co-current packed bed: Experiments and model analysis. *Fuel Processing Technology*. 2016 (145) 76–89
21. **Sandeep K**, Dasappa S. First and second law thermodynamic analysis of air and oxy-steam biomass gasification. *International Journal of Hydrogen Energy*. 2014 (39) 34: 19474–19484
22. **Sandeep K**, Dasappa S. Oxy-steam gasification of biomass for hydrogen rich syngas production using downdraft reactor configuration. *International Journal of Energy Research*. 2014 (38) 174–188

11. International Conference

1. H Singh, **Sandeep K**, S.K. Mohapatra. Investigation of the characteristic parameters of a producer gas-fired dual fuel engine. 7th International Conference on Sustainable Energy and Environmental Challenges (VII SEEC - 2022). 16 - 18 Dec 2022, IIT BHU, Varanasi
2. N Ranjan, **Sandeep K**. Plastic and agro wastes co-gasification using aspen plus: a restricted equilibrium model. 7th International Conference on Sustainable Energy and Environmental Challenges (VII SEEC - 2022). 16 - 18 Dec 2022, IIT BHU, Varanasi
3. S Vikram, **Sandeep K**. Sensitivity analysis of biomass gasification for syngas generation under varying reactive media. 7th International Conference on Sustainable Energy and Environmental Challenges (VII SEEC - 2022). 16 - 18 Dec 2022, IIT BHU, Varanasi
4. A. Singh, **Sandeep K**. "Hydrogen enriched Ammonia as future fuel to curb PM emissions" 3rd International Heat and Mass Transfer Conference (IHMTTC-2019), 2019, IIT Roorkee
5. S. Vikram, **Sandeep K**. "Single particle analysis of thermally thick wood particles in O₂,N₂,CO₂ atmosphere" 7th International Conference on Advances in Energy Research (ICAER 2019), 2019, IIT Bombay

6. S.S. Ail, D. Basso, F. Patuzzi, **Sandeep K**, M. Baratieri. "Gasification based synchronized production of fuels and electricity from woody biomass – A techno-economic analysis" 6th International Conference on Advances in Energy Research 2017, 2017, IIT Bombay
7. Anmol Garg, **Sandeep K**. Oxy-enriched air gasification of wet biomass. International Conference on Sustainable Energy and Environmental Challenges (SEEC-2017). 26 - 28 February, 2017, Mohali, India.
8. **Sandeep K**, Snehesh S Ail, Dasappa S. Carbon dioxide capture through biomass gasification. Proceedings of the 19th European Biomass conference and Exhibition. 6-10 June 2011, Berlin, Germany (1127-1133)
9. **Sandeep K**, Dasappa S. Hydrogen generation through Biomass gasification. World Hydrogen Technology Conference (WHTC), New Delhi, India, 2009

12. Sponsored research

Project Title	PI/CO-PI	Sponsoring Agency	Grant Amount (INR)
Analysis of biomass conversion in reactive media extended to packed bed	PI	IRCC-IIT Bombay	20,000,00
Experimental and Modeling of Biomass Conversion in Different Reactive Media in Packed Bed Gasification Process	PI	DST	28,59,010
Development of Portable Incineration device for safe disposal of Masks/Gloves in Hospitals and Quarantine Centres	PI	TATA Centre, IIT Bombay	1,50,000
SUSTENANCE - Sustainable Energy System for Achieving Novel Carbon Neutral Energy Communities	Co-Investigator	DST-EU	18,20,00000
Design and development of Technology Solutions and Local Ecosystem Support for Low cost Decentralized Mushroom Production for Rural Population	PI	TATA Centre	12,00,000
Promoting Gasifier based community cooking system and pelletization unit has been done	PI	TATA Centre	30,30,000
Green Hydrogen and Power Production from Waste Biomass and Refused Derived Fuel (RDF) municipal waste through Oxy-Steam Biomass Gasification	PI	MEDA	1,99,64,928

13. Consultation work undertaken

Project Title	Funding Agency	Amount (Rs.)
Request for technical opinion on the test reports on a fire accident	Blessings Advertising Pvt. Ltd	1,77,000
Consultancy request from Puri Crawford: Molasses burning in tank	Puri Crawford Insurance Surveyors & Loss Assessors India Pvt. Ltd.	1,75,000
Request for the analysis and verification of the methodology and instrument design of Throttling Calorimeter (developed by Thermax) for the	Thermax Ltd	2,00,000

measurement of dryness fraction in steam		
Technical opinion on a reported incident of molasses burning which was stored within the tank	Puri Crawford Insurance Surveyors & Loss Assessors India Pvt. Ltd.	2,00,000
Technical verification of Gas Cremation Furnace at Chandanwadi Crematorium, Marine Lines Mumbai	A.P.I. CIVILCON PRIVATE LIMITED	3,00,000
Consultation in education program and industry outreach	NATIONAL KANNADA EDUCATION SOCIETY (SVIMS)	50,000
Design the feasible solutions for thermal comfort and natural ventilation in the building for Adhyatm Parivar Trust	Shri Santi Kanak Sharamano Upasak Trust	15,00,000

14. Detail of patents

- Sujeetkumar P. Deore, Sanjay M. Mahajani, **Sandeep Kumar**. *Gasification based crematorium pyre design* (Processed)
- Sujeetkumar P. Deore, Sanjay Mahajani, **Sandeep Kumar**, Prabodh Gadkari, Sudarshan Kumar. *Low emission premix burner design for low calorific value gases*
 - Indian Patent Grant No. - 548679, Grant Date – 11/07/2023
- S Dasappa and **Sandeep Kumar**, *System and method for producing hydrogen rich syngas for hydrogen production*
 - Indian Patent Grant No. - 390746, Grant Date – 28/02/2022
 - International Patent Publication No. - WO/2017/163266, Publication Date 28/09/2017