

CURRICULUM VITAE

1. Name and full correspondence address:

Dr. Bukke Kiran Naik

Assistant Professor (Grade—II),
Faculty of Mechanical Engineering Department,
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2. Webpage:

- Personal webpage:** <https://sites.google.com/view/steslaboratory/home>
- Institute webpage:** <https://website.nitrkl.ac.in/FProfile.aspx?e=naikkb>
- BRICS YSF webpage:** <https://brics-ysf.org/content/bukke-naik>

3. Short bio:

Dr. Bukke Kiran Naik is an Assistant Professor in the Mechanical Engineering Department at NIT Rourkela since 2020. He received his Ph.D. (2019) and M.Tech (2014) from IIT Guwahati and his B.Tech (2012) from JNTU Anantapur in Mechanical Engineering. He worked as a Queen Elizabeth Postdoctoral fellow at Simon Fraser University, Canada, during 2019–2020 and served as a Project Engineer at IIT Guwahati in 2019. He is the recipient of the Paired Early Career Fellowship in Applied Research (PECFAR) from Indo-German Science and Technology Centre (IGSTC), the Queen Elizabeth Scholars (QES) Fellowship from Universities Canada, the CCSTDS Travel fellowship from INSA/CSIR/DAE-BRNS-CCSTDS, SIRE fellowship and the SERB-ITS travel grants for the year 2017 & 2023 from DST, Government of India. Furthermore, he was selected as a Young Indian Scientist for the 6th BRICS (Brazil, Russia, India, China, and South Africa) conclave in 2021, in the thematic area of Energy Solutions. He also received an INAE fellowship for working as a visiting researcher at IIT Kanpur. He holds three patents to date and has secured three funded research projects from ISRO, SERB, and NIT Rourkela. He has also received funding from several agencies (SERB, ATAL, and ISHRAE) to organize outreach programs such as workshops and short-term courses. He served as the ISHRAE Bhubaneswar Sub-Chapter President for the year 2022–2023. Additionally, he served as the Student Activities Chair, K-12 Chair, and CWC member for the ISHARE Guwahati Sub-Chapter from 2016 to 2018, and as a Program Chair for the ISHARE Bhubaneswar Sub-Chapter for the year 2021–2022. He is currently supervising five Ph.D. students, three Master's students, and five Undergraduate students. He has guided over thirteen M.Tech students and nine B.Tech students. He has published more than 50 research articles in reputable international journals and conference proceedings. Moreover, Dr. Naik has been invited by various renowned institutions, universities, and societies to deliver talks on his research work carried out in the energy-building-water nexus or sustainable energy and buildings.

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5. **Areas of Interest:** Sustainable energy and buildings; Energy-Water nexus; Thermo-chemical energy conversion and storage; Micro encapsulation materials; AI/ML techniques for system design and performance analyses; Coupled heat and mass transfer system's modeling.
6. **Institution:** National Institute of Technology (NIT) Rourkela
7. **Date of Birth:** 27th January 1991
8. **Gender (M/F/T):** Male (M)
9. **Academic Qualification (Undergraduate Onwards)**

Degree	Institute/ College/ School	Year	Subject
Ph.D.	Indian Institute of Technology Guwahati	2014 – 2019	PhD Thesis Title: Design and Performance Assessments of Solar Driven Liquid Desiccant Air Conditioning System Components Department: Mechanical Engineering Specialization: Fluids & Thermal
M. Tech	Indian Institute of Technology Guwahati	2012 – 2014	Department: Mechanical Engineering Specialization: Fluids & Thermal
B. Tech	Jawaharlal Nehru Technological University Anantapur	2008 – 2012	Department: Mechanical Engineering

10. **Professional experience (in chronological order):**

Sl. No.	Positions held	Name of the institute	From	To
1.	Project Engineer	Indian Institute of Technology Guwahati	Feb. 2019	May 2019
2.	Queen Elizabeth Postdoctoral Fellow	Simon Fraser University, Burnaby, Canada	September 2019	March 2020
3.	Visiting Researcher	IIT Kanpur (through INAE fellowship)	November 2021	December 2021
4.	Visiting Scientist	PTB Braunschweig, Germany (through PECFAR – IGSTC)	May 2023	July 2023
5.	Visiting Researcher	Georgia Institute of Technology, Atlanta, USA (through SERB-SIRE Fellowship)	November 2023	March 2024
6.	Assistant Professor (Grade-II)	National Institute of Technology (NIT), Rourkela	April 2020	Present

11. **Professional Recognition/Award/Prize/Certificate/Fellowship received**

11.1 *International Level*

Sl. No.	Name of Award	Awarding Agency	Year
1.	Selected for Paired Early Career Fellowship in Applied Research (PECFAR) by IGSTC	Indo-German Science & Technology Centre (IGSTC)	2022
2.	Selected as Young Indian Scientist to 6 th BRICS conclave in thematic area of Energy Solutions	NIAS & DST	2021
3.	Queen Elizabeth Scholars– Advanced Studies (QES–AS) fellowship for pursuing Postdoctoral studies	Universities Canada	2019–2020

11.2 National Level

Sl. No.	Name of Award	Awarding Agency	Year
1.	Received SERB-SIRE fellowship to visit Georgia Institute of Technology, Atlanta, USA	SERB	2023
2.	SERB-ITS Travel Grant for attending international conferences – ICR 2023 and ISHPC 2017 held at Paris Congress Center, France and Waseda University, Tokyo, Japan	SERB	2017 & 2023
3.	Received ISHRAE Presidential Award for Chapter Excellence as ISHRAEBhubaneswar Sub-Chapter President	ISHRAE	2023
4.	Elected as President of ISHRAE Bhubaneswar sub-chapter year 2022	ISHRAE	2022
5.	Mentoring of Engineering Teachers Fellowship	INAE	2021
6.	CCSTDS Travel fellowship award for attending international conference (ICP 2019) held at Kyushu University, Fukuoka, Japan	INSA/CSIR/DAE BRNS-CCSTDS	2019
7.	Nominated as PG Senator	IIT Guwahati	2015–2016
8.	Merit Award for good performance in higher secondary education	Visakhapatnam steel plant thrift & credit society limited	2008

12. Administrative and Professional society responsibilities

12.1 Administrative responsibility

Sl. No.	Responsibility	Year
1.	Assistant Warden, MSS Hall of Residence, NIT Rourkela	June 2022 – Present
2.	Institute HVAC works committee member, NIT Rourkela	April 2022 – Present
3.	M-Tech (Thermal Engineering) Faculty Advisor, NIT Rourkela	2021 – 2023
4.	Co-PIC for Mechanical Department Accreditation and Ranking (UG), Student Societies, Internship and higher studies, NIT Rourkela	2022– Present

12.2 Professional society responsibility

Sl. No.	Positions held	Professional Society	From	To
1.	Immediate Past President & Refrigeration Chair	ISHRAE Bhubaneswar Sub-Chapter	April 2023	Present
2.	President	ISHRAE Bhubaneswar Sub-Chapter	April 2022	March 2023
3.	Program Chair	ISHRAE Bhubaneswar Sub-Chapter	April 2021	March 2022
5.	Students Activities Chair	ISHRAE Guwahati Sub-Chapter	April 2017	March 2018
6.	K-12 Chair & CWC Member	ISHRAE Guwahati Sub-Chapter	April 2016	March 2017

13. Lab Development

1. **Sustainable Thermal Energy Systems Laboratory (STESL)**, Mechanical Engineering Department, NIT Rourkela.

Lab information: Research laboratory for innovations in sustainable/nature-inspired thermal energy systems, buildings, and technologies

2. **Sustainable Energy Park**, Mechanical Engineering Department, NIT Rourkela.

Lab information: Tech-park cum UG/PG laboratory on sustainable energy technologies.

14. List of Patents

1. **B. Kiran Naik**, Gaurav Priyadarshi and D. Abhishek, Design of desiccant coated heat exchanger, Status: Granted; Application Number: 345453-001; Agency/Country: Indian patent office; Nature of patent: Design patent.
2. Y. B. Desale, G. Ranjan and **B. Kiran Naik**, Design of thermal switch, status: Applied; Application Number: 383757-001; Agency/Country: Indian patent office; Nature of patent: Design patent.
3. G. Ranjan, Y. B. Desale, and **B. Kiran Naik**, Design of heat switch, status: Applied; Application Number: 383756-001; Agency/Country: Indian patent office; Nature of patent: Design patent.

15. List of Publications

15.1 SCI Journals

1. Nagamani, G., Naik, B.K. and Agarwal, S., 2024. “Energetic and exergetic performance analyses of mobile thermochemical energy storage system employing industrial waste heat.” *Energy*, 288, p.129730. <https://doi.org/10.1016/j.energy.2023.129730> (I.F- 9.0)
2. Priyadarshi, G., Murali C., Agarwal, S., and Naik, B.K., 2024. “Parametric investigation and optimization of phase change material-based thermal energy storage integrated desiccant coated energy exchanger through physics informed neural networks oriented deep learning approach.” *Journal of Energy Storage* p.110231 (*Article in Press*). <https://doi.org/10.1016/j.est.2023.110231> (I.F.-9.4)
3. Anand, P., Tejes, P.K.S., Naik, B.K. and Niyas, H., 2023. “Design analysis and performance prediction of packed bed latent heat storage system employing machine learning models.: *Journal of Energy Storage*, 72, p.108690. <https://doi.org/10.1016/j.est.2023.108690> (I.F- 9.4)
4. Priyadarshi, G., and Naik, B.K., 2023. “Desiccant coated fin tube energy exchanger design optimization implementing KNN-ML tool and adsorption/desorption kinetics analysis using finite difference based transient model.” *International Journal of Thermal Sciences* p. 108422. <https://doi.org/10.1016/j.ijthermalsci.2023.108422> (I.F- 4.8)
5. Priyadarshi, G. and Naik, B.K., 2023. Performance potentiality analysis of desiccant coated energy exchanger for M– cooler based air conditioning and solar driven drying systems–A case study. *Thermal Science and Engineering Progress*, 43, p.102022. <https://doi.org/10.1016/j.tsep.2023.102022> (I.F- 4.5)
6. Tejes, P.K.S. and Naik, B.K., 2023. “Performance analysis and comparison of M-cooler based indirect contact and structured packing-based direct contact liquid desiccant dehumidifiers.” *Sādhanā*, 48(4), p.205. <https://link.springer.com/article/10.1007/s12046-023-02252-7> (I.F- 1.6)
7. Ram, B.R., Malik, V., Naik, B.K., Patel, K.S. and Singh, V.K., 2023. “Development of empirical correlations for assessing the CuAlMn based shape memory alloy thermal switch phase transition temperatures.” *Sādhanā*, 48(3), p.189. <https://link.springer.com/article/10.1007/s12046-023-02248-3> (I.F- 1.6)

8. Choudhary, P., Desale, Y.B., Ranjan, G., Naik, B.K., and Singh, V.K., 2023. "Parametric optimization of wire EDM process for single crystal pure tungsten using Taguchi-Grey relational analysis." *Sādhanā*, 48(3), p.152. <https://link.springer.com/article/10.1007/s12046-023-02189-x> (I.F- 1.6)
9. Deshmukh, N.S., Gawali, B.S., Naik, B.K., Choudhari, M.S. and Dhalait, R.S., 2023. Macroscopic parameters investigation and transfer characteristics assessment of counter flow packed tower liquid desiccant dehumidifier/regenerator. *Heat and Mass Transfer*, 59(7), pp.1185-1207. <https://link.springer.com/article/10.1007/s00231-022-03325-9> (I.F- 2.2)
10. Dasore, A., Naik, B.K., Konijeti, R., Prakash, B.O., Kumar, R., Saxena, K.K., Prakash, C. and Gupta, N., 2023. Design and investigating the inlet parameters on the performance of the Ranque-Hilsch vortex tube. *International Journal on Interactive Design and Manufacturing (IJIDeM)*, pp.1-9. <https://link.springer.com/article/10.1007/s12008-023-01374-w> (I.F- 2.2)
11. Tejes, P. K. S., Gaurav Priyadarshi, and Naik, B.K., 2023. "Performance characteristics assessment of hollow fiber membrane-based liquid desiccant dehumidifier for drying application." *Applied Thermal Engineering* p. 119311. <https://doi.org/10.1016/j.applthermaleng.2022.119311> (I.F- 6.4)
12. Pavangat, A., Bindhani, O.S. and Naik, B.K., 2023. Year-round and techno-economic feasibility analyses on integration of absorption based mobile thermochemical energy storage with building cooling system in tropical climate. *Energy*, p.126042. <https://doi.org/10.1016/j.energy.2022.126042> (I.F- 8.8)
13. Babu, P.E., Tejes, P.K.S. and Naik, B.K., 2023. Parametric investigation on CO₂ separation from flue gas through temperature swing adsorption process using different sorbent materials. *Carbon Capture Science & Technology*, 7, p.100103. (I.F-4.3)
14. Bhowmik, M., Naik, B.K., Muthukumar, P., and Anandalakshmi, R., 2023. Performance assessment and optimization of liquid desiccant dehumidifier system using intelligent models and integration with solar dryer. *Journal of Building Engineering*, p.105577. <https://doi.org/10.1016/j.jobe.2022.105577> (I.F- 7.14)
15. Mohapatra, Astarag, Pediseti Kumar Sai Tejes, Chatur Gembali, and Naik, B.K., 2023. "Design and Performance Analyses of Evacuated U-Tube Solar Collector Using Data-Driven Machine Learning Models." *ASME Journal of Solar Energy Engineering* 145, p. 1011007. <https://doi.org/10.1115/1.4054852> (I.F- 2.37)
16. Naik, B.K., Sutradhar, R., Priyadarshi, G. and Narkhede, A.P., 2022. A Novel Similarity Solution Approach Based Thermal Performance Prediction and Environmental Analysis of Evacuated U-Tube Solar Collector Employing Different Mono/Hybrid Nanofluids. *Heat Transfer Engineering*, pp.1-14. <https://doi.org/10.1080/01457632.2022.2148343> (I.F- 2.4)
17. Priyadarshi, Gaurav, Dipankar Baruah, and Naik, B.K., 2022. "Design and performance prediction of desiccant coated heat exchanger using ANFIS–AI tool and dynamic model." *Applied Thermal Engineering* 217 (2022):119034. <https://doi.org/10.1016/j.applthermaleng.2022.119034> (I.F- 6.4)
18. Ram, B.R., Malik, V., Naik, B.K., and Patel, K.S., 2022. A Critical Review on Mechanical Heat Switches for Engineering and Space Applications. *Heat Transfer Engineering*, pp.1-14. <https://doi.org/10.1080/01457632.2022.2148348> (I.F-2.4)
19. Pandey, Tryambke, P. K. S. Tejes, and Naik, B.K., "Performance assessment of novel liquid desiccant drying/air conditioning cum desalination system by incorporating M-cycle based dehumidification process." *Desalination* 537 (2022):115843 <https://doi.org/10.1016/j.desal.2022.115843> (I.F- 11.2)
20. Karishma, Shaik Mullan, Upendra Rajak, Naik, B.K., Abhishek Dasore, and Ramakrishna Konijeti, 2022. "Performance and emission characteristics assessment of compression ignition engine fuelled with the blends of novel antioxidant catechol-daok biodiesel." *Energy* 245 (2022): 123304. <https://doi.org/10.1016/j.energy.2022.123304> (I.F- 8.8)
21. Amim, Atif, Gaurav Priyadarshi, Tirtharaj Purushottam Babre, and Naik, B.K. "Evaluation of thermal kinetics of microencapsulated PCM for low-temperature thermal energy storage application." *Materials Letters: X* 14 (2022): 100143.

<https://doi.org/10.1016/j.mlblux.2022.100143> (I.F- 1.75)

22. Aadhithiyan, A. K., R. Sreeraj, Naik, B.K., and S. Anbarasu. "Assessment of evaporative cooling process across the mechanically driven cooling tower based on two-point boundary value problem using novel integral technique." *International Journal of Refrigeration* 131 (2021): 254-262. <https://doi.org/10.1016/j.ijrefrig.2021.08.002> (I.F- 4.14)
23. Naik, B.K., S. Premnath, and P. Muthukumar. "Performance comparison of evacuated U-tube solar collector integrated parabolic reflector with conventional evacuated U-tube solar collector." *Sādhanā* 46, no. 3 (2021): 1-11. <https://doi.org/10.1007/s12046-021-01656-7> (I.F- 1.21)
24. Naik, B.K., and Palanisamy Muthukumar. "Parametric and performance investigations on novel multipurpose liquid desiccant drying/desalination system." *Heat Transfer Engineering* 42, no. 13-14 (2021): 1142-1158. <https://doi.org/10.1007/s12046-021-01656-7> (I.F- 2.4)
25. Naik, B.K., Mahendra Chinthala, Sanjeev Patel, and P. Ramesh. "Performance assessment of waste heat/solar driven membrane-based simultaneous desalination and liquid desiccant regeneration system using a thermal model and KNN machine learning tool." *Desalination* 505 (2021): 114980. <https://doi.org/10.1016/j.desal.2021.114980> (I.F- 11.2)
26. Naik, B.K., Mullapudi Joshi, Palanisamy Muthukumar, Muhammad Sultan, Takahiko Miyazaki, Redmond R. Shamshiri, and Hadeed Ashraf. "Investigating Solid and Liquid Desiccant Dehumidification Options for Room Air-Conditioning and Drying Applications." *Sustainability* 12, no. 24 (2020): 10582. <https://doi.org/10.1016/j.enconman.2019.112291> (I.F- 3.88)
27. Shabir, Faizan, Muhammad Sultan, Yasir Niaz, Muhammad Usman, Sobhy M. Ibrahim, Yongqiang Feng, Naik, B.K., Abdul Nasir, and Imran Ali. "Steady-State Investigation of Carbon-Based Adsorbent–Adsorbate Pairs for Heat Transformation Application." *Sustainability* 12, no. 17 (2020): 7040. <https://doi.org/10.3390/su122410582> (I.F- 3.88)
28. Naik, B.K., P. Muthukumar, and C. Bhattacharyya. "Thermal modelling and parametric investigations on coupled heat and mass transfer processes occurred in a packed tower." *Heat and Mass Transfer* 55, no. 3 (2019): 627-644. <https://doi.org/10.1016/j.buildenv.2018.12.028> (I.F- 2.35)
29. Naik, B.K., and P. Muthukumar. "Energy, entransy and exergy analyses of a liquid desiccant regenerator." *International Journal of Refrigeration* 105 (2019): 80-91. <https://doi.org/10.1016/j.ijrefrig.2018.08.016> (I.F- 4.14)
30. Naik, B.K., and P. Muthukumar. "Experimental investigation and parametric studies on structured packing chamber based liquid desiccant dehumidification and regeneration systems." *Building and Environment* 149 (2019): 330-348. <https://doi.org/10.1007/s00231-018-2440-1> (I.F- 7.1)
31. Naik, B.K., Mrinal Bhowmik, and P. Muthukumar. "Experimental investigation and numerical modelling on the performance assessments of evacuated U–Tube solar collector systems." *Renewable Energy* 134 (2019) 1344-1361. <https://doi.org/10.1016/j.renene.2018.09.066> (I.F- 8.63)
32. Naik, B.K., Bharat Singh, Neelam Dutta, Senthilmurugan Subbiah, and P. Muthukumar. "Fluid to liquid membrane energy exchanger for simultaneous liquid desiccant regeneration and desalination applications–Theoretical and experimental analyses." *Energy Conversion and Management* 204 (2020): 112291. <https://doi.org/10.1007/s12046-018-0974-z> (I.F- 11.53)
33. Naik, B.K., and P. Muthukumar. "Performance assessment of evacuated U-tube solar collector: a numerical study. *Sādhanā* 44, no. 1 (2019): 1-13. <https://doi.org/10.1016/j.ijthermalsci.2018.05.029> (I.F- 1.21)
34. Naik, B.K., P. Muthukumar, and P. Sunil Kumar. "A novel finite difference model coupled with recursive algorithm for analyzing heat and mass transfer processes in a cross-flow dehumidifier/regenerator." *International Journal of Thermal Sciences* 131 (2018): 1-13. <https://doi.org/10.1007/s40032-018-0441-y> (I.F- 4.77)
35. Naik, B.K., and P. Muthukumar. "A novel approach for performance assessment of mechanical draft wet cooling towers." *Applied Thermal Engineering* 121 (2017): 14-26. <https://doi.org/10.1016/j.applthermaleng.2017.04.042> (I.F- 6.4)

15.2 Scopus Indexed Journals

1. Dasore, Abhishek, K. Ramakrishna, and Naik, B.K., "Evaluation of heat and mass transfer coefficients at beetroot-air interface during convective drying." *Interfacial Phenomena and Heat Transfer* 8, no. 4 (2020). <https://doi.org/10.1615/InterfacPhenomHeatTransfer.2020036455>
2. Dasore, A., Naik, B.K., Konijeti, R., Prakash, B.O., Kumar, R., Saxena, K.K., Prakash, C. and Gupta, N., 2023. Design and investigating the inlet parameters on the performance of the Ranque-Hilsch vortex tube. *International Journal on Interactive Design and Manufacturing (IJIDeM)*, pp.1-<https://link.springer.com/article/10.1007/s12008-023-01374-w>
3. Muthukumar, Palanisamy, Naik, B.K., and Amarendra Goswami. "Performance Evaluation of a Mechanical Draft Cross Flow Cooling Towers Employed in a Subtropical Region." *Journal of The Institution of Engineers (India): Series C* 100, no. 2 (2019): 333-341. <http://dx.doi.org/10.1007/s40032-018-0441-y>
4. Naik, B.K., and P. Muthukumar. "Empirical correlation-based models for estimation of air cooled and water-cooled condenser's performance." *Energy Procedia* 109 (2017): 293-305. <https://doi.org/10.1016/j.egypro.2017.03.070>
5. Naik, B.K., V. Choudhary, P. Muthukumar, and C. Somayaji. "Performance assessment of a counter flow cooling tower—unique approach." *Energy Procedia* 109 (2017): 243-252. <https://doi.org/10.1016/j.egypro.2017.03.056>
6. Naik, B.K., Ankit Varshney, P. Muthukumar, and C. Somayaji. "Modelling and performance analysis of U type evacuated tube solar collector using different working fluids." *Energy Procedia* 90 (2016): 227-237. <https://doi.org/10.1016/j.egypro.2016.11.189>
7. Naik, B.K., Ankit Soni, P. Muthukumar, and C. Somayaji. "Coupled heat and mass transfer analysis of an adiabatic dehumidifier—unique approach." *Energy Procedia* 90 (2016): 305-315. <https://doi.org/10.1016/j.egypro.2016.11.198>

15.3 Book chapters

1. Deshmukh, S.A., Barmavatu, P., Das, M.K., Naik, B.K., Aepuru, R., Das, S. and Sravanthi, B., 2023. A review on liquid jet impingement for industrial cooling applications. *Progress in Sustainable Development*, pp.95-114. <https://doi.org/10.1016/B978-0-323-99207-7.00008-7>
2. Deshmukh, S.A., Barmavatu, P., Das, M.K., Naik, B.K., Sikarwar, V.S., Shivakrishna, A., Aepuru, R. and Subash, R., 2023. Advances in Solar-Driven Air-Conditioning Systems for Buildings. In *Pragmatic Engineering and Lifestyle* (pp. 39-60). Emerald Publishing Limited. <https://www.emerald.com/insight/content/doi/10.1108/978-1-80262-997-220231003/full/html>
3. Sheik, M.A., Dasore, A., Naik, B.K. and Malik, V., 2022. Influence of Geometric Configuration on the Flow and Heat Transfer Characteristics of an Open Microchannel Thermal Sinks. In *Advances in Thermal Sciences: Select Proceedings of ICFAMMT 2022* (pp. 27-40). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-19-6470-1_3
4. Dasore, A., Konijeti, R., Naik, B.K. and Annam, S.P.R., 2021. Performance Evaluation of Adsorption Refrigeration System Using Different Working Pairs. In *Innovations in Sustainable Energy and Technology: Proceedings of ISET 2020* (pp. 295-306). Singapore: Springer Singapore. https://doi.org/10.1007/978-981-16-1119-3_26

15.4 List of Conferences

a. Conferences abroad

1. Gaurav Priyadarshi, P. K. S Tejes and B. Kiran Naik, "Physics-Informed Neural Network and Experimental Investigations for Analyzing Adsorption Kinetics of Desiccant Coated Energy Exchanger Under Tropical Climatic Conditions", 26th International Congress of Refrigeration 2023, Paris, 21st – 25th Aug. 2023.
2. Shivendra Kr Rathore, Yash Desale, K. S. Patel, and B. Kiran Naik, "Design and Optimization of

Niobium-Titanium based Superconductive Magnet for the Magneto Resistive Heat Switch”, in 26th International Congress of Refrigeration, Paris 21st – 25th August 2023.

3. P. K. S Tejes and B. Kiran Naik, “Computational and Experimental Analyses on Absorption Kinetics/Characteristics Evaluation of Three Fluid Operated Novel Hollow Fiber Membrane based Liquid Desiccant Dehumidifier”, 7 th International Conference on Polygeneration, (ICP-2023), Universitas Indonesia, 26th -28th July, Kuta, Bali, Indonesia.
4. Gaurav Priyadarshi, Cheepurupalli Murali, and B. Kiran Naik, Experimental and Numerical Investigations for Assessing Desiccant Sorption Kinetics/Characteristics Across the Desiccant Coated Energy Exchanger, 7th International Conference on Polygeneration (ICP) 2023, 26th-28th July 2023, Bali, Indonesia.
5. Gowrisetti Nagamani, and B. Kiran Naik. “Performance Comparison of Mobile ThermoChemical Energy Storage based Building Space Cooling System with Conventional Vapor Absorption/Compression Based Centralized HVAC System”, 7th International Conference on Polygeneration, (ICP-2023), Universitas Indonesia, 26th-28th July, Kuta, Bali, Indonesia.
6. P. Eswar Babu and B. Kiran Naik, “Parametric Analysis on CO₂ Separation from Flue Gas Under Atmospheric Conditions – Computational Study”, Conference: 7th International Conference on Polygeneration, (ICP-2023), 26-28 July, Kuta, Bali, Indonesia.
7. Cheepurupalli Murali, Gaurav Priyadarshi and B. Kiran Naik, Physics-Informed Neural Networks for Analysing the Performance Characteristics of Desiccant Coated Energy Exchanger, 1st edition of International Congress on Separation and Purification Technology (ISPT) 2022, 10th -14th December 2022, USA.
8. Pasupula Eswar Babu, and B. Kiran Naik, “Performance assessment of Temperature Swing Adsorption Process for Carbon capture from Flue Gas”, 1st edition of International Congress on Separation and Purification Technology (ISPT 2022) 10th – 14th December 2022, U.S.A
9. Tirtharaj Babre and B. Kiran Naik, Assessment of Performance Evaluation Criterion for CO₂ Capture from Flue Gases Using Dynamic Mode, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Institute (TERI) & Goa University (GU), April 4-6, 2022.
10. Gaurav Priyadarshi, Dipankar Baruah, B. Kiran Naik, Design and Performance Analyses of Solar-Powered Design Coated Energy Exchanger, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Institute (TERI)& Goa University (GU), April 4-6, 2022.
11. Vinit Malik, Raghuram. B and B. Kiran Naik, Impact of Impurities in Tungsten Based Magneto-Resistive Heat Switch for Space Application, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Institute (TERI)& Goa University (GU), April 4-6, 2022.
12. P. K. S. Tejes, Trayambke pandey and B. Kiran Naik, Calibration and measurement evaluation criterion for extraction of freshwater from salt solution using solar heater/biogas renewable source, Indo-German International Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Institute (TERI) & Goa University (GU), April 4-6, 2022.
13. Omkar Satyaprakash Bindhani and B. Kiran Naik, Net-Zero Model for transportation of Mobile Thermochemical Energy Storage Through District Energy Network, Indo-German International

Conference on Metrology for the Development of Green Hydrogen and Renewable Fuels in India Jointly organized by Physikalisch-Technische Bundesanstalt (PTB) Germany, The Energy and Resources Institute (TERI) & Goa University (GU), April 4-6, 2022.

14. Gaurav Priyadarshi and B. Kiran Naik, Implementation of ANFIS-AI Tool with ANN Fuzzy Logic for Performance Prediction and Design Optimization of Desiccant Coated Energy Exchanger, International Conference on Polygeneration (ICP 2021), Universidad de Zaragoza, Spain and Universitat Rovira i Virgili, Spain, 4 - 6 October 2021.
 15. Atif Amim, B. Kiran Naik, Evaluation of Adsorption Kinetics of Micro-Encapsulated Sorbents and Thermal Kinetics of Micro-Encapsulated PCM for Low Temperature Thermal Energy Storage Application, International Conference on Polygeneration (ICP 2021), Universidad de Zaragoza, Spain and Universitat Rovira i Virgili, Spain, 4 - 6 October 2021.
 16. Athul Pavangat and B. Kiran Naik, Techno-Economic Feasibility Study on Integration of Mobile Thermochemical Energy Storage with Building Space Cooling System, International Conference on Polygeneration (ICP 2021), Universidad de Zaragoza, Spain and Universitat Rovira i Virgili, Spain, 4– 6 October 2021.
 17. P. Kumar Sai Tejes, Gaurav Priyadarshi and B. Kiran Naik, Hollow Fiber Membrane-Based Liquid Desiccant Dehumidifier Performance Assessment for Air Conditioning/Drying Application, International Conference on Polygeneration (ICP 2021), Universidad de Zaragoza, Spain and Universitat Rovira iVirgili, Spain, 4 - 6 October 2021.
 18. Gaurav Priyadarshi and B. Kiran Naik, Performance Evaluation of Desiccant Coated EnergyExchanger Based on Buckingham pi-Theorem, Int. Sorption Heat Pump Conf. 2021 (ISHPC 2021), International Institute of Refrigeration (IIR), 22 - 25 Aug 2021, Technische Universitat Berlin.
 19. P. Kumar Sai Tejes and B. Kiran Naik, Data Driven AI and ML Tools for Exit Parameters Prediction of Hollow Fiber Membrane Liquid Desiccant Dehumidifier, Int. Sorption Heat Pump Conf. 2021 (ISHPC 2021), International Institute of Refrigeration (IIR), 22 - 25 Aug 2021, Technische Universitat Berlin.
 20. Atif Amim and B. Kiran Naik, Sorption Kinetics Assessment of Microencapsulated Sorbent with Humid Air Employing Variable Separable Approach, Int. Sorption Heat Pump Conf. 2021 (ISHPC 2021), International Institute of Refrigeration (IIR), 22 - 25 Aug 2021, Technische Universitat Berlin.
 21. B. Kiran Naik and P. Muthukumar, Parametric Studies and Performance Investigation on Novel Liquid Desiccant Drying/Desalination System, 5th International Conference on Polygeneration (ICP 2019), May 15-17, 2019, Kyushu University, Fukuoka, Japan.
 22. Mrinal Bhowmik, B. Kiran Naik, R. Anandalakshmi and P. Muthukumar, An Experimental Investigation of the Dehumidifier Performance Evaluation Using LiCl-HCOOK Blends, 5th International Conference on Polygeneration (ICP 2019), May 15-17, 2019, Kyushu University, Fukuoka, Japan.
 23. B. Kiran Naik, and P. Muthukumar, Energy, Entransy and Exergy Analyses of a Liquid Desiccant Regenerator, International Sorption Heat Pump Conference (ISHPC-2017), International Institute of Refrigeration (IIR), Aug. 7-10, 2017, Waseda University, Tokyo, Japan.
- b. Conferences in India**
24. Manish Sonkar and B. Kiran Naik, “Modelling and optimization of liquid desiccant regeneration system using ANN-AI tool”, 2nd International Conference on Energy Resources and Technologies for Sustainable Development (ICERTSD–2023), 27th and 28th April 2023, IEST Shibpur, India.
 25. Manish Sonkar, G. Nagamani and B. Kiran Naik, “Parametric study on industrial waste heat driven and PCM based energy storage employed liquid desiccant regeneration system, Innovations in Clean Energy Technologies (ICET-2023), 8th – 10th April 2023, MNIT Bhopal, India.

26. Manish Sonkar, G. Nagamani and B. Kiran Naik, “International Workshop and Conference on Membrane Assisted Water Purification Processes, 9th – 12th March 2023 MGU, Kottayam, Kerala, India.
27. P. Eswar Babu, and B. Kiran Naik, “Adsorption Kinetics Assessment of CO₂ Capture in an Adsorber Bed under Atmospheric Conditions”, International Conference on Evolutionary Manufacturing, Design, and Operational Practices for Sustainability, (ICEMDOPS-2022), 15th - 17th December 2022, CGU
28. Soumya Ranjan Behera, P. K. S. Tejes and B. Kiran Naik “Comparative Analysis and Performance Optimization of Hollow Fiber Membrane Based Liquid Desiccant Distillation System Using Physics-Informed Neural Networks”, International Workshop and Conference on Membrane Assisted Water Purification Process (ICMW 2023), Mahatma Gandhi University, Kottayam, Kerala, India.
29. Yash Bhusaheb Desale, Shivendra Kr Rathore, B. Kiran Naik, K. S. Patel, and Vivek Kumar Singh, “Effect of Cross-sectional Area on the Thermal Conductivity at Temperatures below 6 K”, 4th International Conference on Recent Advances in Mechanical Infrastructure (ICRAM-2022), Institute of Infrastructure, Technology, Research and Management, Ahmedabad, 16th -18th Dec 2022.
30. P. K. S. Tejes and B. Kiran Naik, Performance Prediction of Hollow Fiber Membrane-Based Liquid Desiccant Dehumidifier Using PCA-Integrated OGM (1, N) and SVM Machine Learning Tools, 4th International Conference on Recent Advances in Mechanical Infrastructure jointly organised by IITRAM Ahmedabad and IIT Bhilai, 16th - 18th December 2022.
31. Shivendra Kr Rathore, Yash Desale, K. S. Patel, and B. Kiran Naik, “Design and Optimization of Niobium-Titanium based Superconductive Magnet for the Magneto Resistive Heat Switch”, in 28th National Symposium on Cryogenics and Superconductivity (NSCS-28), IIT Kharagpur 18th – 21st October 2022.
32. Yash Bhusaheb Desale, Shivendra Kr Rathore, B. Kiran Naik, K. S. Patel, and Vivek Kumar Singh, “Geometrical Design of Tungsten based Magneto-resistive Heat Switch, National Symposium on Cryogenics & Superconductivity conference proceedings, Indian Institute of Technology Kharagpur, Kharagpur, 16th – 21st Oct 2022.
33. Pritam Choudhary and B. Kiran Naik, “Analysis of Parameters for Wire EDM Process for Pure Tungsten Using Taguchi Grey Relational Analysis”, in NSCS-28, IIT Kharagpur, 18th-21st October 2022.
34. Vinit Malik, B. Raghuram, Kishore Singh Patel, B. Kiran Naik, V.K. Singh, C. Harish Balaji, R. R. Bhavsar, Comparison of pure and impure single-crystal tungsten magneto-resistive heat switch for space applications, CIME-2022, April 22-23, RGM CET-Nandyal.
35. Gaurav Priyadarshi, P. K. S. Tejes and B. Kiran Naik, Effect of Silica Gel Desiccant and Hydroxyethyl Cellulose Binder Coating Composition Variation on Water Uptake Capacity Across the Fin Tube Samples – Experimental Study, CIME-2022, April 22-23, RGM CET-Nandyal.
36. Tirtharaj Babre and B. Kiran Naik, Design and Performance Assessment of Zeolite 13X Based Adsorber Bed for Carbon Capture under Atmospheric Conditions, ACMS-2022, Kolkata, India, April 14-16.
37. P. K. S. Tejes and B. Kiran Naik, Solar Driven Hollow Fiber Membrane-Based Liquid Desiccant Regenerator Performance Assessment for Freshwater Generation Application, ACMS-2022, Kolkata, India, April 14-16.
38. Gaurav Priyadarshi, and B. Kiran Naik, Effect of Silica Gel and Hydroxyethyl Cellulose Binder Coating Composition Variation on Water Uptake Capacity Across the Fin Tube Samples –

Experimental Study, ACMS-2022, Kolkata, India, April 14-16.

39. Gaurav Priyadarshi, Dipankar Baruah, B. Kiran Naik, Performance Characteristics Assessment of a Desiccant Coated Heat Exchanger Using a Dynamic Model Based on Finite Difference Method, ICTFSD-2022, BIT Mesra, India.
40. Tryambke Pandey, P. K. S. Tejes and B. Kiran Naik, Development and Comparison of ANN-LM and ANN-BR Models for Predicting the Performance of Membrane Based Novel Liquid Desiccant Drying/Air Conditioning cum Desalination System, ICTFSD-2022, BIT Mesra, India.
41. Dipankar Baruah, Gaurav Priyadarshi, and B. Kiran Naik, Design and Performance Analysis of Novel Desiccant Coated Energy Exchanger for Indoor Air Quality Enhancement, NCRAC-2022, February 24-26, 2022, IIT Guwahati, India.
42. Tirtharaj Babre, and B. Kiran Naik, Performance Assessment of Adsorbent coated Energy Exchanger for CO₂ capture under atmospheric conditions. NCRAC-2022, February 24-26, 2022, IIT Guwahati, India.
43. Tryambke Pandey, B. P. K. S. Tejes, and B. Kiran Naik, Performance analysis and comparison between Maisotsenko cycle-based indirect contact M Cooler dehumidifier and structured packing-based dehumidifier. NCRAC-2022, February 24-26, 2022, IIT Guwahati, India
44. Vinit Malik, B. Raghuram, K. S. Patel, and B. Kiran Naik, Thermal Performance Assessment of Tungsten Based Magneto-Resistive Heat Switch for Space Application. NCRAC-2022, February 24-26, 2022, IIT Guwahati, India.
45. B Raghuram, Vinit Malik, B. Kiran Naik, and K. S. Patel, Naik Performance Prediction of CuAlMn- Based Shape Memory Alloy Thermal Switch Using Empirical Correlations. NCRAC-2022, February 24-26, 2022, IIT Guwahati, India.
46. Abhishek Dasore, Md Anees Shaik, B. Kiran Naik, and G. Murali, Experimental and Numerical Investigations on the Thermal Energy Separation Process in a Ranque-Hilsch Vortex Tube. NCRAC-2022, February 24-26, 2022, IIT Guwahati, India.
47. B. Kiran Naik, Rajen Sutradhar, Gaurav Priyadarshi, and Aditya Prafull Narkhede, A Novel Similarity Solution Approach Based Thermal Performance Prediction and Eco-Environmental Analysis of Evacuated U-Tube Solar Collector Employing Different Mono/Hybrid Nanofluids, ICFAMMT-2022, January 20-22,2022. Institute of Infrastructure Technology Research and Management and Space Society of Mechanical Engineers, Ahmedabad, India.
48. B Raghuram, Vinit Malik, B. Kiran Naik, and K. S. Patel, A Critical Review on Mechanical Heat Switches for Space Applications. ICFAMMT-2022, January 20-22,2022. IITRAM and Space Society of Mechanical Engineers, Ahmedabad, India.
49. A Dasore, R Konijeti, B. Kiran Naik, S P R Annam, Performance Evaluation of Adsorption Refrigeration System Using Different Working Pairs, Innovation in Sustainable Energy and Technology India (ISET 2020), 3-4 December 2020, Energy Institute Bangalore.
50. B. Kiran Naik, P. Muthukumar, Performance Assessment and Comparison of Desiccant Coated Heat Exchanger Type and Desiccant Wheel Type Dehumidification Systems, Proceedings of the 25th National and 3rd International ISHMT-ASTFE Heat and Mass Transfer Conference (IHMTTC- 2019), December, 28-31, 2019, IIT Roorkee, Roorkee, India.
51. B. Kiran Naik and P. Muthukumar, Energy Entransy and Exergy Analyses of an Air-Cooled Condenser. 12th International Conference on Thermal Engineering: Theory and Applications (ICTEA- 2018), Pandit Deendayal Petroleum University (PDPU), Gandhinagar, India, 23-26 February 2019.
52. B. Kiran Naik and P. Muthukumar, Novel Approach for Predicting the Performance of The

Evacuated U - Tube Solar Collector Integrated with Parabolic Reflector. 5th International Conference on Computational Methods for Thermal Problems (THERMACOMP -2018), Indian Institute of Science, Bangalore, July 9-11, 2018.

53. B. Kiran Naik, V. Choudhary, P. Muthukumar and C. Somayaji, Performance Assessment of a Counter Flow Cooling Tower-Unique Approach, International Conference on Refrigeration and Air Conditioning (RAAR-2016), Bhubaneswar, November 10-12, 2016.
54. B. Kiran Naik, and P. Muthukumar, Empirical Correlation Based Models for Estimation of Air Cooled and Water- Cooled Condenser's Performance, International Conference on Refrigeration and Air Conditioning (RAAR-2016), Bhubaneswar, November 10-12, 2016.
55. B. Kiran Naik, P. Muthukumar and C. Somayaji, Thermodynamic Analysis of Liquid Desiccant Dehumidification System - A Novel Approach, 23rd National Heat and Mass Transfer Conference and 1st International ISHMT-ASTFE Heat and Mass Transfer Conference IHMTC, ISRO Thiruvananthapuram, India, Dec. 17-20, 2015.
56. B. Kiran Naik, Ankit Soni, Amit kumar, P. Muthukumar and C. Somayaji, Coupled Heat and Mass Transfer Analysis of an Adiabatic Dehumidifier - Unique Approach, 5th International Conference on Advances in Energy Research (ICAER-2015), IIT Bombay, Mumbai, India, Dec. 15-17, 2015.
57. B. Kiran Naik, Ankit Varshney, P. Muthukumar and C. Somayaji, Modelling and Performance Analysis of U Type Evacuated Tube Solar Collector Using Different Working Fluids, 5th International Conference on Advances in Energy Research (ICAER -2015), IIT Bombay, Mumbai, India, Dec. 15- 17, 2015.
58. B. Kiran Naik, Amit Kumar, Ankit Soni, P. Muthukumar and C. Somayaji, Coupled Heat and Mass Transfer Analysis of an Adiabatic Regenerator - Unique Approach, International Conference on Aerospace and Mechanical Engineering (ICAME - 2015), TKM College of Engineering, Kerala, India, Dec. 14-16, 2015.
59. B. Kiran Naik, V. Choudhary, P. Muthukumar and C. Somayaji, Performance Assessment of a Cross Flow Cooling Tower - A Simplified Approach, 4th National Conference on Refrigeration and Air Conditioning (NCRAC-2015), IIT Madras - Rajalakshmi Engineering College (Jointly), Chennai, October 28-30, 2015.
60. B. Kiran Naik, and P. Muthukumar, Performance Investigations of a Crossflow Induced Draft Cooling Tower Employed in a Water-Cooled Condenser of 900 TR A/C Plant. International Conference on Emerging Trends in Renewable Energy (ICETRE-2013), CV Raman college of Engineering, Bhubaneswar, India, 27-28 December 2013.

16. *Ph.D. Students guidance at NIT Rourkela*

Sl. No.	Name of the Student (Roll No.)	Duration	Project Title/research area
1.	GAURAV PRIYADARSHI (519ME1011)	2021-ongoing	Development of desiccant coated energy exchanger for improving indoor environmental quality
2.	P. KUMAR SAI TEJES (520ME6005)	2021-ongoing	Development of Novel Multipurpose Liquid Desiccant Drying/Desalination System Using Hydrophobic Membrane as an Energy Exchanger.

3.	MANISH SONKAR (522ME8003)	2022-ongoing	Design and Development of Liquid Desiccant Desalination System
4.	GAUTAM RANJAN (522ME1002)	2022-ongoing	Magnetoresistive Heat Switch for Space Applications
5.	SAMEER KUMAR VERMA(522ME1012)	2022-ongoing	Biofluid Mechanics and Multiphase Flow
6.	ASHIS KUMAR (923ME5001)	2023-ongoing	Membrane based waste heat/water recovery from gas/coal fired power plant

17. M-Tech Students guidance at NIT Rourkela

Sl. No.	Name of the Student (Roll No.)	Duration	Project Title/research area
1.	ATIF AMIM (219ME5571)	2020 – 2021	Adsorption and Thermal Kinetics Analyses of Microencapsulated Sorbents and PCMs for Low Temperature Energy Storage Application.
2.	ATHUL PAVANGAT (219ME5292)	2020 – 2021	Sorption Thermal Energy Storage for District Energy Network Based Building Space Cooling Application
3.	DIPANKAR BARUAH (220ME3408)	2021 – 2022	Studies on desiccant coated energy exchanger for dehumidification application
4.	TRYAMBKE PANDEY (220ME3421)	2021 – 2022	Mobile Thermal Energy Storage Based Building Space Cooling Application
5.	VINIT MALIK (220ME5054)	2021 – 2022	Magnetic heat switches for cryogenic temperature application
6.	TIRTHARAJ PURUSHOTTAM BABRE (220ME5430)	2021 – 2022	Carbon capture from flue gases using desiccant coated energy exchanger
7.	B. RAGHURAM (220ME5427)	2021 – 2022	Design and development of magneto resistive heat switch
8.	CHEEPURUPALLI MURALI (221ME3525)	2022 – 2023	Thermal kinetics and Dynamic Analyses of Desiccant Coated Heat Exchanger
9.	PASUPULA ESWAR BABU (221ME3528)	2022 – 2023	CO ₂ Adsorption & Desorption under atmospheric conditions
10.	GOWRISETTI NAGAMANI (221ME3533)	2022 – 2023	Mobile Thermo-chemical Energy Storage System
11.	OMKAR SUNKARWAR (221ME3536)	2022 – 2023	Experimental and Numerical Investigations on Parabolic Evacuated U-tube Solar Collector
12.	YASH BHAUSAHEB DESALE (221ME5540)	2022 – 2023	Optimal length, diameter and area of Tungsten crystal for Magneto resistive Heat Switch development

13.	SHIVENDRA KR RATHORE (221ME5544)	2022 – 2023	Design & optimisation of superconducting magnets for space applications
14.	SUBHANKAR BHUNIA (222ME3224)	2023-2024	Design and development of superconducting magnet of a magnetoresistive heat switch for space application
15.	ADITYA DARKA (222ME3498)	2023-2024	Feasibility Study on Energy Saving Scenarios of Preinstalled Vapour Compression Chiller Based District Cooling System
16.	ARVIND KUMAR (222ME3499)	2023-2024	Numerical studies on carbon capture using adsorption materials under atmospheric conditions

18. B-Tech Students guidance at NIT Rourkela

Sl. No.	Name of the Student (Roll No.)	Duration	Project Title/research area
1.	RAJEN SUTRADHAR (118ME0510)	2020 – 2021	Implementation of AI/ML Tools for design and performance assessment of liquid desiccant dehumidifier
2.	OMKAR SATYAPRAKASH BINDHANI (118ME0733)	2020 – 2021	Mobile Thermal Energy Storage for Building Space Cooling Application
3.	CHATUR GEMBALI (118ME0447)	2021 – 2022	Implementation of AI/ML tools for design and performance assessment of evacuated u-tube solar collector
4.	ABHIRAM BISWAL (119ME0334)	2022 – 2023	Desiccant coated energy exchanger for drying application
5.	PRATIKSHIT NANDA (119ME0357)	2022 – 2023	Numerical simulations on membrane based liquid desiccant dehumidification
6.	KARAN KUMAR PADHAN (119ME0358)	2022 – 2023	Nocturnal radiative cooling
7.	SHREETAMA SAHU (119ME0376)	2022 – 2023	Experimental analysis of series flow based evacuated solar u tube collector
8.	PRITAM CHOUDHARY (119ME0708)	2022 – 2023	Experimental analysis on wire EDM process of single crystal Tungsten and its alloys
9.	KESHAVKANT PRASAD (119ME0732)	2022 – 2023	AI/ML Tool for evacuated U-tube solar collector system design and performance analyses
10.	RATUL SINHA (119ME0738)	2022 – 2023	AI/ML Tool for DCHE design and performance analyses
11.	PRIYATAM DAS (120ME0279)	2023-2024	Mobile thermal energy storage based refrigeration system vs conventional refrigeration systems
12.	YENNI DEEKSHITHA (120ME0281)	2023-2024	Numerical analysis of heat switch embedded in superconducting magnet

13.	SANJAY RAJ KUCHIPUDI (120ME0291)	2023-2024	AI/ML Tool for System Design and Performance Analyses
14.	SHUBHAM KUMAR PATI (120ME0318)	2023-2024	Potentiality of geothermal hotspots for conversion of waste water into fresh water
15.	SEEMA SARFA SOREN (120ME0761)	2023-2024	Evacuated u-tube solar collector
16.	SARA DEVENDRA CHHAJED (120ME0780)	2023-2024	Numerical analysis of roof slab employing different insulating and PCM materials- A comparative Analysis

19. M-Tech Students guidance at other institutions as Co-Supervisor

Sl. No.	Name of the Student (Roll No.)	Institute	Duration	Project Title/research area
1.	KARTHIK K N (20EB1EE04)	Energy Institute, Bangalore	2020 – 2021	Desiccant coated energy exchanger-based air conditioning system
2.	NAQUEEB SHAAD JAGIRDAR (21EB1RE10)	Energy Institute, Bangalore	2021 – 2022	Implementation of AI/ML for design and performance prediction of latent heat storage
3.	PRATYUSH ANAND (21EB1RE13)	Energy Institute, Bangalore	2021 – 2022	Implementation of AI/ML for design and performance prediction of sensible heat storage

20. Student's achievement worked under my guidance

Sl. No.	Name of the Student (Roll No.)	Institute	Program and Duration	Achievements
1.	KARAN KUMAR PRADHAN	NIT Rourkela	B-Tech 2022–23	Received Best B-Tech project from Foundation for ISHRAE, Research, Science, Technology (First) on the topic, “Development of Nocturnal Radiative Cooling System” .
2.	TIRTHARAJ PURUSHOTTAM BABRE (220ME5430)	NIT Rourkela	M-Tech 2020 – 2021	Selected for developing innovative solution for “Portable cold storage for seasonable vegetables for rural areas” in National Innovation Foundation – India
3.	VINIT MALIK (220ME5054)	NIT Rourkela	M-Tech 2020 – 2021	Part of the research team member representing Rourkela in Global Mayor Challenge 2021 for Economic Recovery & Inclusive Growth theme.

4.	GAURAV PRIYADARSHI (519ME1011)	NIT Rourkela	Ph.D. 2021- ongoing	1. Visiting Doctoral Student at INRAE France from Jan. 2024 – Feb. 2024 2. Received best paper award for “ Effect of Silica Gel Desiccant and Hydroxyethyl Cellulose Binder Coating Composition Variation on Water Uptake Capacity Across the Fin Tube Samples – Experimental Study ” at CIME-2022
5.	P. K. S. Tejes (520ME6005)	NIT Rourkela	Ph.D. 2021- ongoing	1. Given an invited talk at International Conference on Measurement of Energy at PTB Brunswick, Germany on 4 th September 2023 (Link: https://www.energy.ptb.de/program/speakers) 2. Best Students Activities Chair, ISHRAE Bhubaneswar Sub-Chapter
6.	VINIT MALIK (220ME5054)	NIT Rourkela	M-Tech 2020 – 2021	Received best paper award for “ Comparison of pure and impure single-crystal tungsten magneto-resistive heat switch for space applications ” at CIME-2022

21. Funded projects

a) Principal Investigator (PI)

Sl. No.	Title	Sponsor	Value	Year
1.	Design and Development of Magneto Resistive Heat Switch PI: Dr. B. Kiran Naik Co-PI: Dr. S. N. Dash & Dr. K. S. Patel	ISRO	Rs. 29,70,000/- (40,000 USD)	2022 – 2024
2.	Development of Novel Multipurpose Liquid Desiccant Drying/Desalination System Using Hydrophobic Membrane as an Energy Exchanger PI: Dr. B. Kiran Naik Co-PI: Nil	SERB	Rs. 28,61,000/- (38,500 USD)	2020 – 2023
4.	Design and Development of Helical Threaded Desiccant Coated Heat Exchanger for HVAC Application PI: Dr. B. Kiran Naik Co-PI: Nil	NIT Rourkela	Rs. 2,00,000/- (2000 USD)	2020 – 2021

b) Co-Investigator

Sl. No.	Title	Sponsor	Value	Year
1.	Design of Micro cryogenic coolers for phased array receiver Role: Co-PI	ISRO	Rs. 35,54,000/- (43,000 USD)	2022 –2024

c) Mentor

1.	Development of Nocturnal Radioactive Cooling Device Role: Mentor	ISHRAE	Rs. 50,000	2022 – 2023
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22. Research projects worked during my Master's, Doctoral and postdoctoral study

Sl. No.	Title	Sponsor	Contribution	Year
1.	Design and Development of sorption based thermochemical energy storage for mobile thermal energy storage (M- TES) application	City of Surrey, Govt. of Canada (Role: Team Member)	To design and develop a thermochemical energy storage of 2kW capacity using sorption material for mobile thermal energy storage (M-TES) application.	2019 – 2020
2.	Design and development of Cold plate heat exchanger	Terella Energy Systems (Role: As a part of QES scholar industrial internship)	To design and develop a graphite based cold plate heat exchanger of 0.5 capacity	Feb. 2020 – March 2020
3.	Development of High Temperature Thermal Energy Storage System for Solar Thermal Power Plant	DST, Govt. of India (Role: Project Engineer)	To assist in design and development of high temperature thermochemical energy storage system of 10MJ capacity.	Feb. 2019 – May 2019
4.	Assessment of various energy saving techniques in HVAC systems employed in CPL	Cadila pharmaceuticals Pvt. Limited (CPL) (Role: Project Assistance)	Assisted in suggesting various energy conservation techniques that can be implemented for improving the HVAC plant performance	December 2016 – June 2017
5.	Cooling load evaluation for academic buildings	As a part of teaching assistance duty for refrigeration and air conditioning course (Role: Term project advisor)	Suggested various energy saving methodology for reducing the cooling load in an air- conditioned space.	September and October months of 2016, 2017, 2018.

6.	Design and development of solar driven liquid desiccant-based dehumidification system components	IIT Guwahati (as a part of doctoral thesis)	Designed and developed a solar driven liquid desiccant dehumidification system which can be commercialized for drying agricultural products as well as for air conditioning purpose.	2016 –2019
7.	Performance verification of water cooled and air-cooled condenser-based A/C plant	As a part of M – tech thesis	Provided a solution for converting water loss from cooling tower to useful drinking water. Suggested a suitable condenser in HVAC system applications according to humid subtropical climate.	2013-2014

23. Funded outreach activities

Sl. No.	Title	Sponsor	Value	Year
1.	Recent Advancements in Membrane-based Wastewater Treatment [RAMWT-2023] Role: Principal Coordinator	SERB – ISHRAE	Rs. 45,000/-	2023
2.	Lecture Series in Mechanical Engineering to commemorate Diamond jubilee year of NIT Rourkela (Virtual mode) Role: Principal Coordinator	NIT Rourkela	Rs. 11,000/-	2022
3.	High-Performance Computing and AI Predictive Tools in Fluids and Thermal Role: Co–Coordinator	SERB	Rs. 5,00,000/-	2022
4.	A high-end training workshop on thermal energy storage in building applications to train research scholars and faculties in thematic area–energy and buildings under Accelerate Vignan– Karyashala scheme. Role: Principal Coordinator	SERB	Rs. 1,50,000/-	2021
5.	A Five Day Online AICTE Training and Learning (ATAL) Academic FDP Programme on Fuel Cell Technology [FCT-2021] Role: Co–Coordinator	AICTE	Rs. 93,000/-	2021

6.	A Five Day Online AICTE Training and Learning (ATAL) Academic FDP Programme on Multidisciplinary Research in the Field of Fluids Role: Co-Coordinator	AICTE	Rs. 93,000/-	2021
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24. Invited talks/Session Chair/Conference Technical Committee

Sl. No.	Title	Lecture Date	Lecture place	Programme Name
1.	Performance investigation and feasibility analysis of novel/sustainable wastewater recovery system employing geothermal energy	8 th Dec. 2023	KL University	4 th International Conference on Advanced Functional Materials for Sustainable Energy Applications (ICAFMSA-2023) (<i>Invited talk and session chair</i>)
2.	Recent advancements in open sorption systems	4 th June, 2023	TU Berlin	Invited Talk, through PECFAR, IGSTC
3.	Atmospheric Water Harvesting Using Sustainable Liquid Desiccant Desalination System	6 th June 2023	Pondicherry University	SERB Accelerate Vigyan (AV) Karyashala Awareness on Sustainable Energy Management and Harvesting Techniques
4.	Session Chair	9 th -12 th March 2023	Mahatma Gandhi University, Kottayam, Kerala, India	International Workshop and Conference on Membrane Assisted Water Purification Processes
5.	Recent Advancements in Sustainable Liquid Desiccant Desalination Systems	15 th Dec. 2022	C. V. Raman Global University, Bhubaneswar	International Conference on Evolutionary Manufacturing, Design, And Operational Practices for Sustainability” (ICEMDOPS-2022)
6.	Session Chair	26 th Nov. 2022	NIT Rourkela	4 th Innovative Product Design and Intelligent Manufacturing Systems Conference (IPDIMS2021)

7.	Sensitization webinar on ISHRAE,	12 th Nov. 2022	Sarala Birla University, Ranchi	Webinar
8.	Fostering research excellence beyond the expectations	18 th July 2022	IIIT Kottayam	SERB Accelerate Vigyan (AV) Scheme, Karyashala on Methods for Creating a Quality Research Article: Software and Writing Perspective
9.	Basic Simulations on COMSOL Multiphysics	1 st July 2022	NIT Rourkela	Fundamentals of Computational Fluid Dynamics: A Practical Approach
10.	Session Chair	23 rd April 2022	RGM CET	International Conference on Contemporary Innovations in Mechanical Engineering
11.	Research career opportunities in medical devices through additive manufacturing	7 th Feb. 2022	NIT Rourkela	SERB Accelerate Vigyan (AV) Scheme, Karyashala on Next generation Medical Devices: Focusing on therapeutic and diagnosis Series-1
12.	Research Career Opportunities and Support	4 th Feb 2022	Chandigarh University	One Week Faculty Development Programme On Research Essentials
13.	Advancements in Vapour absorption-based air conditioning/drying cum desalination system	28 th Jan 2022	NITT Bangalore	One-day virtual seminar on Recent trends in HVAC&R
14.	Session Chair	5 th Oct. 2021	University of Zaragoza – Universitat Rovira i Virgili, Spain	International Conference on Polygeneration (ICP) – 2021
15.	Recent Advancements in Solar Driven Liquid Desiccant Air Conditioning Systems	3 rd Sept. 2021	RGM College of Engineering and Technology – ISHRAE Bhubaneswar sub- chapter	Energy Modelling and Simulation of HVAC systems
16.	Implementation of Data- Driven Models for Design and Performance Analyses of Thermal Systems	31 st July 2021	Guru Ghasidas Viswavidyalaya, Bilaspur (Central University)	National Workshop on Emerging Trend in Research Areas and Opportunities in Science and Technology
17.	Research Excellence – Not Beyond your Reach	20 th June 2021	NIT Tiruchirappalli	SERB Accelerate Vigyan (AV) Scheme, Karyashala (High-End Workshops) on

				Methods and tools for effective dissemination of research ideas and findings
18.	Sorption based mobile thermal energy storage	17th Feb 2021	IIITDM, Kurnool	Online Faculty Development Program On “Nanomaterials: Experimental Design & Theoretical Modeling”
19.	Future energy transition towards sustainability	15 Sep 2020	ISHRAE Bhubaneswar sub-chapter	Invited Talk, ISHRAE Bhubaneswar sub-chapter
20.	Recent Advancements in Solar Driven Liquid Sorption Air Conditioning System and Its Future Perspectives	2nd Sep 2020	TKM College of Engineering, Kollam, Kerela	FDP on Advanced Fluid Mechanics and Heat Transfer for Aerospace Applications
21.	Liquid Sorption, Air Conditioning and Desalination Systems: Thermal modeling and experimental aspects	01 Jul 2020	Bv Raju Institute of Technology, Vishnupur, Narsapur, Medak District. Telangana	Workshop on Significance of Modeling and Simulation for Engineers
22.	Recent Development in Evacuated U-Tube Solar Collector Orientated Application	18 Jun 2020	Annamacharya Institute of Technology & Sciences, Rajampet	Webinar Talk

25. Membership in professional body

- Associate member of Indian Society of Heating, Refrigeration, and Air-conditioning engineers (ISHRAE) (Membership ID: 22265).
- Life Member of Space Society of Mechanical Engineers (SSME) (Membership Id: LM-0393).

26. Extra-circular activities

- Winner at school level quizzes during the year 2001-2002 (Role: Team leader).
- Achieved Mark of Appreciation from JNTUA University for organizing Science & Technology Exhibition – 2011.
- Achieved Mark of Appreciation from Department of mechanical engineering, JNTUA University, for organizing National Level Technical Symposium Dynamechs 2012.
- Organized several workshops on behalf of Indian Society of Heating, Refrigeration and Air-conditioning engineers (ISHRAE) – Guwahati Sub chapter.
- Attended a workshop on “Recent Trends in Renewable Energy Utilization Technologies” during 8th – 12th May 2019.
- Participated in NSERC Energy Storage Technology Winter School at SFU, BC, Canada in February 2020.

27. Accolades received

- NIT Rourkela official for 6th BRICS conclave in thematic area of Energy Solutions:

<https://www.facebook.com/nitrkl1/photos/a.2069921623074825/4609378969129065/>

• **Monday Morning (student media body of NIT Rourkela):**

<https://mondaymorning.nitrkl.ac.in/article/2021/09/27/3097-deliberating-for-a-sustainable-future-at-the-brics-young-scientist-conclave-2021-dr-bukke-kiran-naik/>

• **Article about me in Queen Elizabeth Scholars Canada Annual Report 21-22:**

<https://drive.google.com/file/d/1-YM0PIDFm6y0sGWfBLI6b2VqTEGX3mv5/view>

• **PECFAR fellowship award ceremony from IGSTC 21-22:** <https://shorturl.at/zCS45>

• **SERB-SIRE fellowship 23-24 Article NIT Rourkela official:**

<https://www.facebook.com/photo/?fbid=752466966921922&set=a.461691335999488>

28. Reviewer

- Reviewer of energy and thermal science related International Journals such as **Energy, Thermal Science and Engineering progress, Applied Energy, Hydrogen Energy, Journal of Magnetism and Magnetic Materials** – Elsevier Journals, **Int. J. Ambient Energy** – Taylor and Francis, and **Sustainability** – MDPI Journal.
- **DST-INSPIRE MANAK** scheme project proposals reviewer.

29. Personal Information

Date of Birth : 27/01/1991
Place of Birth : Gajuwaka, Visakhapatnam District, Andhra Pradesh, INDIA
Nationality : Indian
Marital Status : Married

30. Declaration

I hereby declare that the above-furnished information is true and correct to the best of my knowledge.

Date: January 2024



(B. Kiran Naik)