

# Dr. Apeksha Madhukar



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## 1. Academics

### *A. Academic qualifications*

- **B.E. Degree** (Electrical and Electronics Engineering), Shri Sankaracharya Technical Campus, Bhilai, Chhattisgarh, June 2014
- **M.Tech. Degree** (Power System Engineering), Indian Institute of Technology, Bhubaneswar, June 2016
- **PhD.** (Electrical Engineering), Department of High Voltage Engineering, Indian Institute of Science, Bangalore, February 2019

### *B. Research Experience*

- Research Associate at Electrical Engineering Department, Indian Institute of Science, Bangalore, Nov. 2018- Nov. 2019

### *C. Professional Experience*

- Assistant Professor at Department of Electrical Engineering, Central University of Karnataka, Gulbarga (Dec. 2019- Present)

## 2. Award & Fellowship

### *A. Awards*

- National Budding Innovators Award by National Research & Development Corporation (NRDC), Govt. of India, 2018

- National Science Congress participants, 2008

### ***B. Honors & Recognitions***

- Reviewer of manuscript submitted to IEEE Transactions on Plasma Sciences (IEEE-TPS)
- Reviewer of manuscript submitted to International Journal of Plasma Science & Technology (IJPEST)
- Reviewer of manuscript submitted to Basic & Applied Sciences

## **3. Research Areas**

- Environmental pollution control
- Utilization of wastes to reduce waste
- Industrial application of High voltage
- Non-thermal plasma Technique

## **4. Publications**

### ***A. Journals***

1. Apeksha Madhukar and B. S. Rajanikanth, "Augmenting NO<sub>x</sub> reduction in diesel exhaust by combined plasma/ozone injection technique: A laboratory investigation," IET High Voltage, vol. 3. no. 1, pp. 60-66, Mar. 2018, ISSN: 2397-7264, DOI: **10.1049/hve.2017.0153**
2. Apeksha Madhukar and B. S. Rajanikanth, "Plasma/adsorbent system for NO<sub>x</sub> treatment in diesel exhaust: a case study on solid industrial wastes," International Journal of Environmental Science and Technology, Springer, vol 16, no. 7, pp. 2973-2988, July 2019, ISSN: 1735-2630, DOI: **<https://doi.org/10.1007/s13762-018-1776-x>**.
3. Apeksha Madhukar and B. S. Rajanikanth, "Waste foundry sand/Bauxite residue for enhanced NO<sub>x</sub> reduction in diesel exhaust pre-treated with plasma/O<sub>3</sub> injection", IEEE transaction on plasma Science, vol. 47, issue 1, pp 376-386, Jan 2019, ISSN: 0093-3813, DOI: **10.1109/TPS.2018.2877824**
4. Apeksha Madhukar and B. S. Rajanikanth, "Cascaded plasma-ozone injection system: a novel approach for mitigating total hydrocarbons in diesel exhaust," Plasma Chemistry and Plasma Processing, Springer, vol 39, no. 4, pp. 845-862, July 2019, ISSN: 1572-8986, DOI: **10.1007/s11090-019-09959-8**
5. Sankarsan Mohapatro, Nikhil Kumar Sharma and Apeksha Madhukar, "Abatement of NO<sub>x</sub> using compact high voltage power supply: Towards retrofitting to automobile vehicle", IEEE trans. on Dielectric and electrical

insulation, vol 24, issue 5, pp. 2738-2745, 2017, ISSN: 1070-9878, DOI: **10.1109/TDEI.2017.006052**

6. Sankarsan Mohapatro, Srikanth Allamsetty, Apeksha Madhukar and Nikhil Kumar Sharma "Study of nano-second pulse discharge-based nitrogen oxides treatment using different electrode configuration", IET high voltage, vol 2, issue 2, pp. 60-68, 2017, ISSN: 2397-7264, DOI: **10.1049/hve.2017.0011**
7. Sankarsan Mohapatro, Srikanth Allamsetty, Apeksha Madhukar and Nikhil Kumar Sharma, "Study on the effect of electrode configurations on NO<sub>x</sub> removal from diesel engine exhaust", Journal of CPRI, vol. 13, no. 4, pp. 79-84, 2017
8. Srikanth Allamsetty, Apeksha Madhukar, "Review of discharge plasma treatment of NO<sub>x</sub> in diesel engine exhaust: Progress in standalone and cascaded measures", IEEE Transactions on Plasma Science, 2020 *Under review*

## ***B. Conferences***

1. Apeksha Madhukar, Pragati K.M, Janardhana M and Rajanikanth B.S, "Agricultural rice husk waste for cleaning diesel exhaust pre-treated by non-thermal direct/indirect Plasma," The 11<sup>th</sup> International Symposium on Non-Thermal/Thermal Plasma Pollution Control Technology and Sustainable Energy, ISNTP-11, Padova, Italy, P-39, July 2018.
2. Sankarsan Mohapatro, Srikanth Allamsetty, Apeksha Madhukar and Nikhil Kumar Sharma, "Study on the effect of electrode configurations on NO<sub>x</sub> removal from diesel engine exhaust", 18<sup>th</sup> Asian Conference on Electrical Discharge (ACED), IIT Madras, Chennai, India, Dec. 8-10, 2016
3. K. Nishanth, A. Madhukar and B. S. Rajanikanth, "Estimation of Ozone Generation in Dielectric Barrier Discharge Plasma using Response Surface Methodology and Fuzzy Logic," 2020 IEEE International Conference on Power Systems Technology (POWERCON), Bangalore, India, 2020, pp. 1-5, DOI: **10.1109/POWERCON48463.2020.9230546**.

## **5. Portfolios**

### ***A. Courses Handled***

- Basic Control Theory EE1210 (Dec- April)- Undergraduate Level
- Control Systems EE2220 (Dec- April and Aug-Dec)- Undergraduate Level
- Inverters & Choppers EEXXXX(Aug-Dec)- Undergraduate Level
- Introduction to Electrical Engineering UEETCC1003(Aug-Dec)- Undergraduate Level

- Power Electronics EEL702 (Dec-April)- Post Graduate Level
- Advanced Control Engineering EEL742 (Aug-Dec)- Post Graduate Level

***B. Responsibility Handled***

- Branch Counsellor, IEEE Student Branch, Central University of Karnataka (January 2020- Present)
- NPTEL Coordinator (SPOC), Central University of Karnataka (October 2020- Present)
- Coordinator, Industry Academia Interface Cell, Central University of Karnataka (September 2020- Present)
- Alumni Coordinator, School of Engineering, Central University of Karnataka (September 2020- Present)
- Academic Calendar Coordinator, School of Engineering, Central University of Karnataka (September 2020- Present)
- Coordinator, SPARSH Committee, School of Engineering, Central University of Karnataka (January 2020- Present)
- Member, School Board, School of Engineering, Central University of Karnataka (Dec 2020- Dec 2023)
- Exam Coordinator, Department of Electrical Engineering, School of Engineering, Central University of Karnataka (July 2020- Present)