

# SARUP DAS

Researcher In The Environmental Engineering Stream With Knowledge And Skills  
In Environmental Research, Sustainable Methods And Pollution Control.

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- **Personal email:** [sarupdasdmr@gmail.com](mailto:sarupdasdmr@gmail.com)
- **Institution:** Indian Institute of Technology (IIT) Madras
- **Date of Birth:** 12<sup>th</sup> November, 1995
- **Gender:** Male (M)
- **Category:** Schedule Caste (SC)
- **Whether differently abled:** No



## ACADEMIC QUALIFICATIONS

### **Doctor of Philosophy in Environmental Engineering Division**

Indian Institute of Technology (IIT) Madras, Tamil Nadu, India (2020 - 2025)

CGPA: 8.0 (out of 10)

### **Master of Technology in Energy and Environmental Engineering**

National Institute of Technology (NIT) Rourkela, Odisha, India (2018 – 2020)

CGPA: 7.6 (out of 10)

### **Bachelor of Technology in Civil Engineering**

National Institute of Technology (NIT) Agartala, Tripura, India (2014 – 2018)

CGPA: 6.81 (out of 10)

## Ph.D. THESIS DETAILS

**Title:** Characterisation of emissions from open biomass burning, prediction and dispersion of PM<sub>2.5</sub> using CALPUFF, and associated acute and chronic health risk assessment

**Supervisor:** Professor S. M. Shiva Nagendra, IIT Madras, Chennai, India

**Co-Supervisor:** Professor Sotiris Vardoulakis, University of Canberra, Australia

## **EXAMINATION QUALIFIED**

### **Graduate Aptitude Test in Engineering (GATE) 2018**

Qualified in Civil Engineering (CE) with a Gate score of 392

## **RESEARCH INTERESTS**

- Urban Air Quality & Personal Exposure Monitoring
- Indoor Air Quality & Exposure Sciences
- Satellite Remote Sensing & Air Quality Modeling
- Environmental Geochemistry & Toxicology Analysis
- Climate Change & Aerosol Interactions

## **WORK & RESEARCH EXPERIENCE**

### **Australia-India 'Unnati' Research Collaboration Grant' funded by Govt. of Australia Researcher**

Collaborators: Australian National University, Australia and IIT Madras, India  
April 2023 – March 2024

### **National Carbonaceous Aerosols Program - COALESCE (National Carbonaceous Aerosols Programme- Carbonaceous Aerosol Emissions, Source Apportionment and Climate Impacts)**

Researcher

Collaborators: IIT Bombay, IIT Kharagpur, CSIR-4L, and IIT Madras  
May 2022 – April 2023

### **Clean Energy for Healthy Environments and Lives in India (CE4HEAL)**

[<https://www.canberra.edu.au/faculties/health/heal/heal-research/ce4heal>]

Researcher

Collaborators: IIT Madras, India & Australian National University (ANU), Australia  
April 2022 – December 2023

### **Clean Environment and Planetary Health in Asia (CEPHA) Network [<http://cepha.in/>]**

Researcher & Network Manager, Department of Civil Engineering, IIT Madras

Collaborators: India, UK, Australia, China, Thailand, and Malaysia

September 2020 – March 2022

### **Waste Management and Drinking Water Treatment with Moringa Oleifera Seed Extract**

Energy & Environmental Engineering, NIT Rourkela, India

July, 2019 - May, 2020

## **PUBLICATIONS**

### ***Conference Proceedings***

**Das, S., & Nagendra, S. M. S.** (2025). Emissions Assessment and Health Impacts of PM<sub>2.5</sub> Due to Burning Sugarcane Residue in Mandya District, Karnataka. Lecture Notes in Civil Engineering, 582 LNCE, 317–327. [https://doi.org/10.1007/978-981-96-2359-4\\_25](https://doi.org/10.1007/978-981-96-2359-4_25)

**Das, S., Indu, G., S. Nagendra, S.M., Vardoulakis, S.,** 2025. Comparative Analysis of Indoor Air Quality and Health Risk Assessment in Academic Workspaces in India and Australia. Presented at the European Geosciences Union (EGU) General Assembly 2025. Austria Convention Centre, Vienna, Austria. <https://doi.org/10.5194/egusphere-egu25-13038>

**Das, S., S. Nagendra., S.M.,** 2024. Characterisation of open sugarcane residue burning, prediction and associated health risks of PM<sub>2.5</sub> in Karnataka: Southern state of India. Presented at the American Geophysical Union (AGU) Fall Meeting 2024. Washington Convention Centre, Washington D.C, Washington, USA. <https://doi.org/10.22541/essoar.173499036.65218058/v1>

**Das, S., S. Nagendra., S.M.,** 2023. Temporal behaviour and personal exposure assessment of PM<sub>2.5</sub> emitted from an open sugarcane residue burning in Mysuru District, Karnataka. Presented at the Healthy Environments and Lives (HEAL) Conference 2023, Australian National University (ANU), Canberra, Australia, p. 27.

**Das, S., S. Nagendra., S.M.,** 2022. Seasonal and temporal distribution of PM over Southern India due to Sugarcane open residue burning in Karnataka. Presented at the CEPHA Symposium on Environmental Epidemiology and Health Risk, Bangi Resort Hotel, Malaysia, p. 21.

**Das, S., S. Nagendra., S.M.,** 2022. Air Pollution Due to Biomass Burning in India. in: Conference Proceedings of CEPHA 2022 International Symposium. Presented at the CEPHA 2022. International Symposium, Mahidol University, Thailand, p. 36.

### ***Poster Presentations***

**Das, S., S. Nagendra., S.M.,** 2024. Impact of massive sugarcane residue burning, dispersion, and associated health risk assessment of PM<sub>2.5</sub> in Srirangapatna, Karnataka, in: Open House 2024, Department of Civil Engineering, IIT Madras, India.

**Das, S., Balachandran, G., S. Nagendra., S.M.,** 2024. Unveiling the Impact of Agricultural Fire Radiative Power (FRP) on Temperature Inversion and Vertical and Vertical Aerosol Dynamics in Punjab, India. in: Healthy Environments and Lives (HEAL) Conference 2024, University of Canberra, Australia.

**Das, S., Mitra, S., S. Nagendra., S.M., 2024.** Effects of massive dumpsite burning on ambient air quality for the coastal area at Brahmapuram, Kochi, in: 9<sup>th</sup> Indian International Conference on Air Quality Management (IICAQM 2024), Indian Institute of Technology (IIT) Madras, India.

### ***Newsletter***

**Das, S., 2023.** Particulate matter pollution and human health as per Indian context. CEPHA Prakriti Quarterly Newsletter, October-December 2023, Vol 3, Issue 4, p. 20. <http://cepha.in/prakriti-vol-3-issue-4/>.

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### **SCHOLARSHIP & AWARDS**

- Received the **Honor Award** (full financial assistance) for an Oral Presentation and participated at the **CEPHA 2022 International Symposium** at Mahidol University, Thailand organized by the **Clean Environment & Planetary Health in Asia (CEPHA) Network** in collaboration with IITM-India, IOM-UK, ANU-Australia, UKM-Malaysia and Peking University, China on March 2022.
- Received the prestigious **IIT-M Alumni Travel Grant** to participate in the **Joint Class 2022 workshop on Environmental Chemicals and Human Health** organized jointly by the Hokkaido University, Japan, Mahidol University, Thailand, and Seoul National University, Korea in **Mahidol University, Thailand**, and received **Third Prize** upon presenting my work on **Pesticides: Environmental and Health risks** in October 2022.
- Awarded **Best Technical Paper (Second Prize)** for presenting my work titled **Emissions Assessment and Health Impacts of PM<sub>2.5</sub> with AIRQ<sup>+</sup> Model Due to Burning Sugarcane Residue in Mandya District, India** at the 7<sup>th</sup> Indian International Conference on Air Quality Management (IICAQM 2022) held in Indian Institute of Technology Madras (IIT-M) on December 2022.
- Awarded for a **Student Exchange Program** (full financial assistance) at the **Australian National University (ANU), Canberra, Australia** funded by the Clean Energy For Healthy Environments and Lives (CE4HEAL) project between IITM, India and ANU, Australia, for the period of **April-June, 2023**.
- Received a **Research Assistantship**, supported by **Menzies School of Health Research, Alice Spring, Australia**, funded by 'Unnati Research Collaboration Grant,' **Government of Australia**, to conduct a survey and Air Quality Monitoring in the remote areas of Alice Spring, Australia on **May-June, 2023**.
- Received the **IIT Madras International Conference Grant** and an additional **Alumni Travel Grant** to present my research work titled **Characterization of open sugarcane**

**residue burning, prediction and associated health risks of PM<sub>2.5</sub> in Karnataka: Southern state of India** at the American Geophysical Union (AGU) Fall Meeting 2024 in Washington Convention Centre, Washington D.C, Washington, USA on December 2024.

## **TRAINING & WORKSHOPS**

- Workshop on ‘**Ecosystem management priorities and challenges in the present scenario**’ - 5<sup>th</sup> June 2021.
- Workshop on ‘**Sustainable Development Initiatives for the Asian Countries**’ - 23<sup>rd</sup> to 25<sup>th</sup> November 2021.
- Workshop on ‘**Air pollution and its impact on human health and environment**’ - 2<sup>nd</sup> December 2021.
- Workshop on ‘**The Adaptability of Citizen Science in Asian Countries**’ - 10<sup>th</sup> December 2021.
- Half-day workshop on ‘**Technologies to control environmental challenges**’ - 18<sup>th</sup> January 2022.
- Half-day workshop on ‘**Urban air pollution and the role of citizens**’ - 17<sup>th</sup> February 2022.
- Workshop on ‘**Clean Air Mitigation Plan for Mega Cities and Challenges**’ in Westin, Chennai, India - 22<sup>nd</sup> March 2022.
- GIAN course on ‘**Urban Air Quality Assessment, Modeling and Management**’ at IIT Madras - 25<sup>th</sup> to 29<sup>th</sup> September 2023.

## **TECHNICAL SKILLS**

**Laboratory Instruments Skilled With:** Ion Chromatograph, ICP-OES, EC-OC Analyzer, AAS, X-Ray Diffractometer, SEM-EDS, CHNS, UV-vis Spectrophotometer, FTIR, TGA.

**Field Instruments Skilled With:** GRIMM, OPS, SKC Pump, Andersen Cascade Impactor, Mini-WRAS, High Volume Sampler, IAQ meter, TVOC meter.

**Software Knowledge:** CALPUFF, MATLAB, R-studio, Origin, QGIS, ArcGIS, MPPD, AirQ+, HYSPLIT.

**Research Scoping Skills:** Screening of research papers and literature review, Report Preparation, Graphics Designing with Canva and Photoshop.

**Languages:** English (proficient), Bengali (native), Hindi (fluent).

## **INDUSTRIAL VISITS**

- Field visits to a **Solid Waste Dumpsite** during my visit to **Alice Springs, Australia** on May 2023.

- Air quality monitoring campaign during the **dumpsite burning** in **Kochi, Kerala** in March 2023.
- Field visits to the Agricultural fields in **Karnal District, Haryana**, during the post-harvesting season of crop residue open burning in November 2022.
- Field air quality monitoring near **Brick-kiln** at Srirangapatna, Mysuru for the NCAP project [Host Universities: IIT Bombay, IIT Kharagpur, CSIR-4L, and IIT Madras].

## **LEADERSHIP AND VOLUNTEER EXPERIENCE**

- **Network Manager & Researcher**  
*Clean Environment and Planetary Health in Asia (CEPHA) Network, IIT Madras (2020 – 2022).*
- **Student Coordinator**  
*Indian International Conference on Air Quality Management (IICAQM 2020-2024)*
- **Editor**  
*PRAKRITI Newsletter, CEPHA Network, IIT Madras (2021 – 2024)*
- **American Geophysical Union (AGU)**  
*Student Member (Membership ID: 12941)*
- **Air Quality Management Association (AQMA), IIT Madras**  
*Lifetime Association Member (Membership ID: AQMA-22E-0016)*
- **EGU Member**  
*Student Member (Membership ID: 783663)*
- **Technical Affairs Secretary**  
*Pampa Hostel Council 2024-2025, IIT Madras*
- **Organising Committee Manager**  
*Monthly Air Quality Management Lecture (AQML) Series, IIT Madras (2020 to till date)*

## **REFERENCES**

### **Dr. S.M. Shiva Nagendra**

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Indian Institute of Technology (IIT) Madras  
Chennai, India - 600036  
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### **Dr. Sotiris Vardoulakis**

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