Dr. Smaranika Panda

Assistant Professor
Environmental Engineering Division
Department of Civil Engineering
S.V. National Institute of Technology Surat, Surat 395007
Contact: +91 9444383276
Email: smp@ced.svnit.ac.in
Email: panda.smaranika@gmail.com

Research Interests

- Air Quality Management
- Air Quality Modelling
- Carrying Capacity Studies
- Urban and Industrial Air Quality Monitoring
- Chemical Characterization of Particulates
- Indoor Air Pollution
- Exposure Analysis
- Health Risk Assessment
- Source Apportionment
- Receptor Modelling

EDUCATION

Program	Year of completion	Institution	CGPA/Percentage
M.S and Ph.D Civil Engineering	2018	Indian Institute of Technology, Madras	8.78
B.Tech. Civil Engineering	2009	Biju Patnaik University of Technology (BPUT), Odisha	7.99

Class XII	2004	Khallikote college under CHSE board, Odisha	76%
Class X	2002	Govt.girls high School HSE board, Odisha	87%

M.S and Ph.D. Research **June 2012-April 2018**

Specialization	**Atmospheric science/Air pollution**
Details of research work	➢ Development of fine resolution gridded emission inventory for SO_2, NO_2 and PM_{10} using ARC GIS software ➢ Development of Gaussian based dispersion model by integrating MATLAB and Arc GIS platforms to understand the spatial and temporal variations of SO_2, NO_2 and PM_{10} concentrations in Manali ➢ Measurement of ground level SO_2, NO_2, Coarse and fine PM, VOC concentrations and characterization of PM_{10} for various ions, elements, primary and secondary poly aromatic hydrocarbons (PAHs) ➢ Health risk assessment of heavy metals, VOCs and PAHs. Further, in depth understanding of various meteorological factors affecting air pollutants ➢ Development of modified approach to quantify assimilative capacity and provide various management options to mitigate the air pollution at Manali
Publications	**<u>During Ph.D:</u>** **International journals:** **Panda. S, and Nagendra, S. M. S., (2018).** Chemical and morphological characterization of respirable suspended particulate matter (PM10) and associated heath risk at a critically polluted industrial cluster. Atmospheric Pollution Research. https://doi.org/10.1016/j.apr.2018.01.011 **Panda, S. and Nagendra, S.S., (2017).** Assimilative capacity–based emission load management in a critically polluted industrial cluster. Journal of the Air & Waste Management Association, 67(12), pp.1353-1363. **Panda. S, and Nagendra, S. M. S.,** Characterization of ground level SO_2, NO_2 and PM concentrations at an industrial cluster in tropical environment (under review) **Panda. S, and Nagendra, S. M. S.,** Assessment of hazardous air pollutants (PAHs and VOCs) in a residential area of a critically polluted industrial cluster (under review) **International conference:** **Panda. S, and Nagendra, S. M. S., (2015).** Characteristics of criteria air pollutants in Manali industrial area, Tamil Nadu, 108th International conference Air and waste management association, Raleigh, 24-26 June 2015

WORK EXPERIENCE

CMR Institute of Technology **July 2018- June 2021**

Designation	Associate Professor and Head Centre of Excellence Natural Resourrce Management
Roles, responsibilities and project description	Teaching, research, mentoring, GATE Coordinator, Head of Centre of excellence (CoE) on natural resources management, Member of Doctoral research Committee (DRC), Lab in charge for all labs
Publications	**International conference:** **Panda. S., (2021).** Effect of Land Uses on Personal Exposure of Street Vendors at a Metropolitan City, Virtual Conference on disaster risk reduction, Civil Engineering for a Disaster Resilient Society (VCDRR) 15-20 March 2021,organized by NIT Suratkal (accepted). **Panda. S., (2021).** Assessment of Personal Exposure of street vendors at different land uses of Bangalore, International Virtual Conference on innovative trends in Hydrological and Environmental Systems (ITHES - 2021) April 28-30, organized by NIT Warangal (Under Review) **Panda. S., (2020).** Assessment of particulate exposure in different transport medium at two contrasting land uses of Bangalore, International Conference Advances in Civil Engineering (ACE 2020) 5-7 November 2020, Visvesvaraya National Institute of Technology, Nagpur (India) **Panda. S., (2020).** Carrying Capacity Based Air Quality Management at an Industrial area, IEEE International Conference on Communication, Computing, And Industry 4.0 (C2I4) – 2020 on 17th & 18th December 2020 at CMR Institute of Technology, Bangalore, India **Panda. S., (2020).** A Fine Resolution GIS Based Emission Inventory for Air Pollution Analysis at an Industrial Cluster, 6th International Conference On Civil Engineering Trends and Challenges for Sustainability (CTCS 2020) **Panda. S., (2019).** Health risk assessment of street vendors at a traffic intersection of Bangalore, International conference on Innovative Trends in Civil Engineering for Sustainable Development (ITCSD - 2019) at NIT Warangal **Panda. S., (2019).** Impact of land uses on exposure of street vendors at a metropolitan city, 4th Indian International Conference on Air Quality Management (IICAQM 2019): Measurement, Modelling, Health Risk and Public Policy to be held from 18 to 20th December 2019 at IIT Bombay, Mumbai,

	International journals: **Panda. S., (2019).** Personal exposure and health risk assessment of street vendors at contrasting land uses of a metropolitan city (journal paper under review) **Panda. S., (2019).** Impact of transport micro environment on personal exposure at selected busy streets of Bangalore (under review)

Snyder Energo Pvt. Ltd. Bangalore **May 2011- June 2012**

Designation	Project engineer in Hydel projects
Roles, responsibilities and project description	Designing various components of hydro power plants, preparation of DPR, tenders, estimation, BOQ, checking the drawing and coordination

Sanjay Memorial Institute of Technology under BPUT, Odisha **February 2010- July 2010**

Designation	Lecturer
Subjects taught	Geotechnical Engineering and Environmental Engineering

POSITIONS & RESPONSIBILITIES at CMR Institute of Technology

- **Head of Centre of Excellence-Natural Resource Management and Associate Professor**
- Successfully completed 4 projects individually
- Successfully handled diverse projects as a CoE head through division of work, proper co-ordination, status update and completion on time status update.
- Active participation in writing DST, SERB and Government funded proposals.
- Completed a project namely "Carrying Capacity Assessment of stone quarrying mines at Perecherla, Guntur" as a **project advisor in collaboration with IIT Madras and Andhra Pradesh State Pollution Control Board.**
- Actively Participated in developing Rain Water Harvesting at CMRIT Campus
- DST under the scheme start up grant cleared the first review
- VGST proposal submitted for the year 2019 results awaited
- An active member of **Society of Women Engineers (SWE)** CMRIT and organization of various technical and non technical talk and webinars.
- Department LRC (Lab Refinement Committee) and Budget coordinator for consecutive 4 semesters since 2018 December to 2021 June which involves budget preparation, preparation of purchase order, procurement of equipments and consumable for laboratories.

- GATE exam coordinator which involves coordination, motivation and conduction of GATE Preparatory classes for final and pre final year students.
- Received **letter of Appreciation** from CMR Institute of Technology Management in the 1st year of joining

Projects handled individually at Centre of Excellence-Natural Resource Management:

Sr No.	Project title	Duration	Visible Outputs
1	Exposure Assessment of Street Vendors at different land uses	08/2018-05/2019	• **Panda. S., (2019).** Health risk assessment of street vendors at a traffic intersection of Bangalore, International conference on Innovative Trends in Civil Engineering for Sustainable Development (ITCSD - 2019) at NIT Warangal • **Panda. S., (2019).** Personal exposure and health risk assessment of street vendors at contrasting land uses of a metropolitan city (journal paper under review)
2	Impact of transport micro environment at selected busy streets of Bangalore	08/2018-05/2019	• **Panda. S., (2019).** 4th Indian International Conference on Air Quality Management (IICAQM 2019): Measurement, Modelling, Health Risk and Public Policy to be held from 18 to 20th December 2019 at IIT Bombay, Mumbai, Impact of land uses on exposure of street vendors at a metropolitan city • Received **Karnataka State Council for Science and Technology (KSCST) 42nd series funding**. • **Panda. S., (2019).** Impact of transport micro environment on personal exposure at selected busy streets of Bangalore (Journal under preparation) • **Panda. S., (2020).** Assessment of particulate exposure in different transport medium at two contrasting land uses of Bangalore, International Conference Advances in Civil Engineering (ACE 2020) 5-7 November 2020, Visvesvaraya National Institute of Technology, Nagpur (India) (accepted)
3	Exposure of PM5 concentrations during Diwali at Bangalore city	Sampling during 2018 and 2019 November	• Presented a poster at Techno meet conducted at CMR institute of Technology

Workshops

- Successfully participated in Summer School CAMPUS ASIA EEST (Collaborative Graduate School Program for Global Human Resources Development in Energy and Environmental Science and Technology) held in Kyushu University, Fukuoka, Japan from 17th to 28th August 2013
- Actively participated in "Industrial Air Pollution Control Techniques and Air Quality Management" organized by Department of Civil Engineering, Indian Institute of Technology Madras held from 11th to 13th October 2012
- Actively participated in AICTE sponsored short term course on "Modelling Approaches for Free Surface Flow and Water Quality Management" organized by Department of Civil Engineering, Indian Institute of Technology Madras held from18th to 23rd November 2013
- Actively participated in "Winter School on Indoor Air Quality and Health Effects" organized by Department of Civil Engineering, Indian Institute of Technology Madras held from 09th to 14h December 2013
- Actively participated in Continuing Education Program on "Industrial Air Pollution Control" organized by Department of Civil Engineering, Indian Institute of Technology Madras from 9th to 10th September 2014
- Actively participated in Continuing Education Program on "Air Quality Modelling" organized by Department of Civil Engineering, Indian Institute of Technology Madras held from 10th to 15th November 2014
- Actively participated in Continuing Education Program on "Workshop on Exposure Monitoring Systems for Air Quality Management" organized by Department of Civil Engineering, Indian Institute of Technology Madras held from 12th to 13th December 2014
- Actively participated in the workshop on "GIS and Modelling – Application in Environmental Engineering" organized by Jayachamarajendra College of Engineering, Mysore held on 28th and 29th March, 2014

Volunteer for workshops organized for the years 2012-2017

- Was an active member in general arrangements and hospitality wings

Volunteer for Indian International Conference on Air Quality Management (IICAQ) for the years 2016 and 2017

- Played a key role in organizing the conference and making it a huge success
- Maintained International standards for the conference in terms of all arrangements

SHORT TERM TRAINING PROGRAMME

- A short term training program on "Implication of GIS on Civil Engineering" was successfully completed by me under the CoE Natural Resource Management, CMRIT in December 2020 for students, industrial and academia personnel.

MEMBERSHIP of PROFESSIONALBODIES

- Life member of The Indian Society of Technical Education, membership No: LM128233
- Associate member of The of Engineers (India), membership no: A917733

DELIVERED TALKS

- Organized and delivered a talk in one day workshop on "Statistical tools for Data Analysis" in the month of November 2020.
- Delivered a tech talk on Source apportionment study at different land uses of Bangalore at CMR institute of Technology in April 2020
- Delivered tech talk on Air quality Characterization and impact of land use at particulate exposure at CMR institute of Technology in October 2019
- Delivered a lecture on emission inventory and quantification of assimilative capacity at Manali industrial area in Winter School on Indoor Air Quality and Health Effects" organized by Department of Civil Engineering, Indian Institute of Technology Madras held from 09th to 14th December 2013
- Delivered a lecture on Dispersion of air pollutants at Manali industrial area in Continuing Education Program on "Air Quality Modelling" organized by Department of Civil Engineering, Indian Institute of Technology Madras held from 10th to 15th November 2014

SKILLS

- Modeling Software: AERMOD, CALPUFF, ISCST3, CALINE 4, ARC GIS, QGIS, PMF, CMB
- Data Analysis: MS Excel, SPSS and Origin
- Designing Software: C, C++, MATLAB, PYTHON and AUTOCAD
- Operating Systems: Windows

Knowledge Upgrade

I have a strong inclination towards upgrading my knowledge and stay up to date with the current cutting edge technologies. I have taken various online courses which are listed below

- Air Pollution- A global threat to our health offered by University of Copenhagen (Platform: Coursera) completed on 02/05/2019
- Completed a course namely Orientation Towards Technical Education & Curriculum Aspects provided by National Institute of Technical Teachers Training (NITTT) completed on 30/007/2020
- Fundamental of Arc GIS – (Platform : Udemy)- On going
- Completed course on "Energy literacy" offered by Swaraj Foundation

INSTRUMENTATION

I have hands on experience on the following air quality monitoring and chemical characterization instruments

PM analyzer:	Beta attenuation monitor (Model: MP101, Environment S.A), Grimm dust monitor (1.108), high volume sampler (APM 460 NL, Envirotech), Personal sampler, Handy sampler
SO_2 analyzer:	U.V fluorescencent analyzer (Model: AF22M, Environment S.A), Gaseous attachment unit (Envirotech gas sampler APM 411)
NO_2 analyzer:	Chemiluminescenceanalyzer (Model: AC32M, Environment S.A), Gaseous attachment unit (Envirotech gas sampler APM 411)
VOC analyzer:	Organic vapour sampler (OVS 856, Envirotech)

PM Characterization: Ion Chromatography (IC), Inductive coupled plasma optical electron spectroscopy (ICP-OES), GC-MS

LABORATORY KNOWLEDGE

I have hands on experience in

- Environmental engineering lab
- Geo technical engineering lab
- Concrete structure design lab
- Transportation lab
- Surveying lab
- Programming in C, C++ lab

SUBJECTS HANDLED at CMRIT

	ODD SEMESTER	EVEN SEMESTER
2018-2019 Academic Year	THEORY: Traffic Engineering LAB: Environmental Engineering	LAB: Geology
2019-2020 Academic Year	THEORY: Traffic Engineering LAB: Environmental Engineering	THEORY: Highway Engineering LAB: Geology
2020-2021 Academic Year	THEORY: Highway Engineering	

TEACHING ASSISTANCESHIP and COURSE WORK

At IIT Madras, I have assisted for organizing various tutorials, class lectures, class tests, experiments and labs for the following subjects

- **Subjects:** Models of water and air quality, Air quality management, environmental monitoring and data analysis, Environmental Impact Assessment
- **Laboratory:** Environmental lab (BTech and MTech)

- Air quality management
- Models of air and water quality
- Hazardous waste management
- Environmental Impact Assessment
- Environmental Monitoring and Data Analysis
- Physico-chemical process for W&W treatment
- Environmental Chemistry and Microbiology
- Contaminant Transport Modelling
- Mathematical Modelling in Industry
- Engineering mechanics
- Fluid mechanics
- Water resource engineering
- Strength of materials
- Steel structure
- Structural engineering design and drawing
- Transportation engineering
- Environmental engineering
- Geo technical engineering