WELCOME TO
ENVIRONMENTAL ENGINEERING (EE)

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Dr. Ligy Philip

Dr. Mathava Kumar S

Dr. Mohan S

Dr. Sachin S. Gunthe

Dr. Shiva Nagendra S. M

Dr. Mohanakrishnan Logan

Environmental Engineering

Dr. Chandan Sarangi

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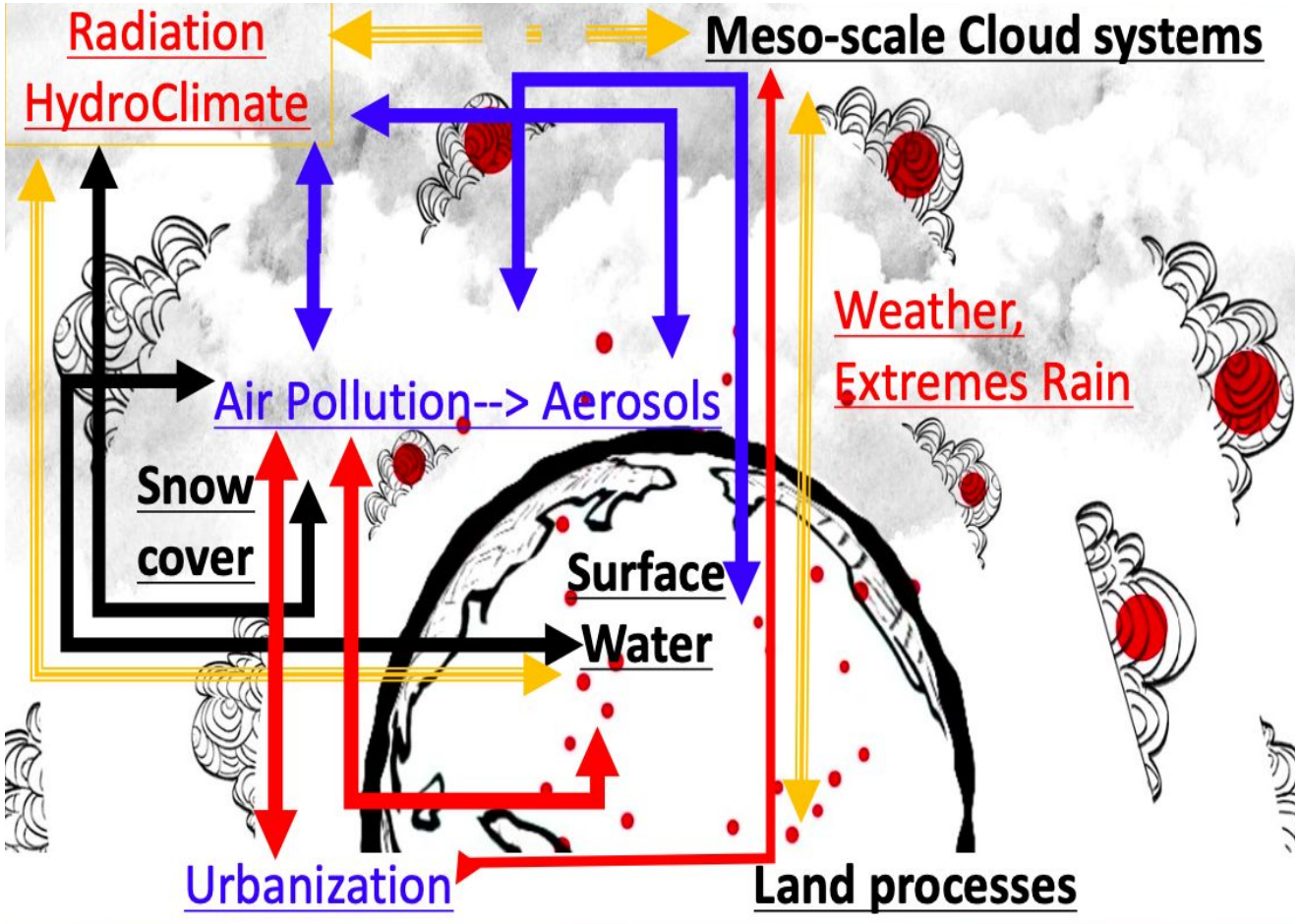
Major Areas of Research

- Impact of aerosols (particulate air pollution) on hydrometeorological processes (clouds, rainfall, fog, transpiration)
- Impact of dust deposition on Himalayan hydrology
- Modelling fate and transport of aerosols at regional and global scale
- Relative role of aerosols on temperature and extreme rainfall over Megacities



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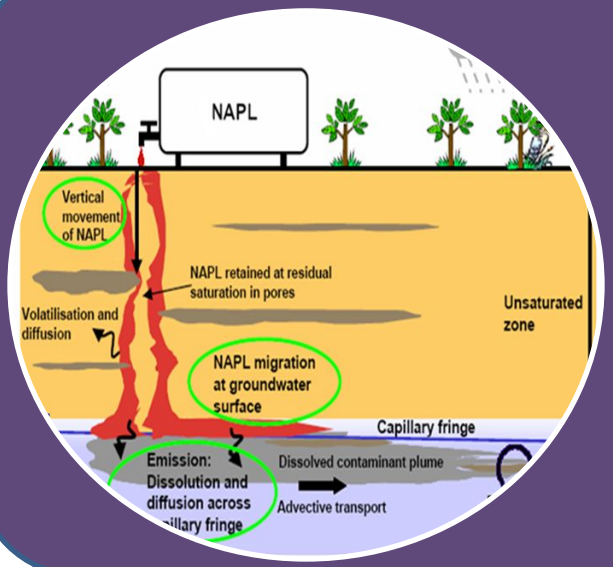
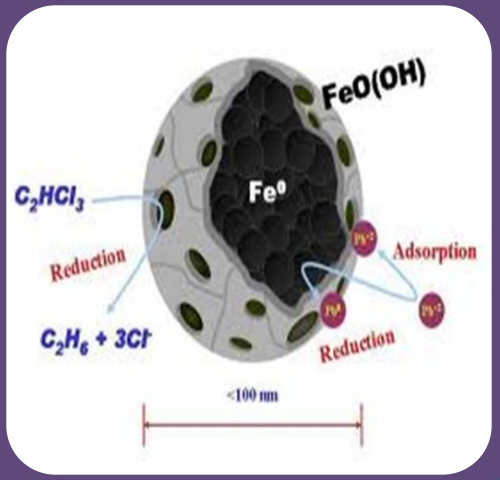
- Ground Water Contamination including NAPL /Transport and Remediation
- Industrial Wastewater Treatment/Physical and Chemical Processes
- Water and Waste Water /Tertiary treatment for reuse



Mercury entrapped in soil

Nano Iron



Experimental Studies span from pore scale to lab scale and field scale

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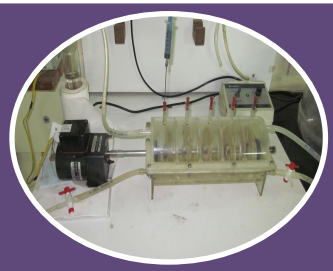
- Bioremediation of Contaminated Water, Soils, Air and Aquifers
- Water Treatment and Rural Water Supply
- Domestic and Industrial Wastewater Treatment, Recycle and Reuse

To cleanup soils , aquifers and air contaminated with organic and inorganic toxic pollutants

Water quality assessment and providing tailor made centralized and point of use water treatment technologies



Sustainable Wastewater management using centralized/decentralized and onsite systems

Pollution Abatement, Drinking water quality assessment and treatment

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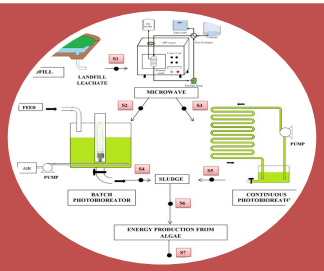
Major Areas of Research

- Membrane Technology for Water and Wastewater Treatment
- Emerging Contaminants/Micro-Pollutants Removal
- Development of Low-cost adsorbents & Remediation of Contaminated Systems

Technology for Emerging Contaminants/Micro-Pollutants Removal

Membrane (Bio)reactor for wastewater treatment



Solid Waste Management and Leachate Treatment

Application of technologies for water, wastewater and solid waste management

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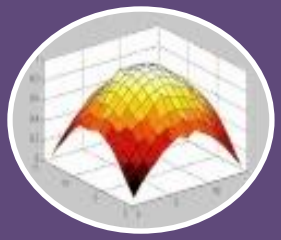
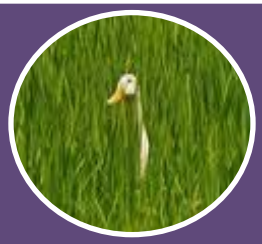
- Environmental systems analysis & modeling,
- Environmental impact analysis,
- Reservoir operation,
- Contaminant transport modeling,
- Sustainable development, GIS & applications,
- Evolutionary algorithms & their applications



Evolutionary Algorithms



Sustainable Development

Water, Air, and Land Pollution Abatement

EARTH ALLOWS YOU TO STAND; LET IT STAND THE WAY IT IS

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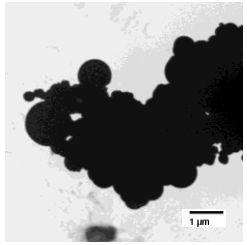
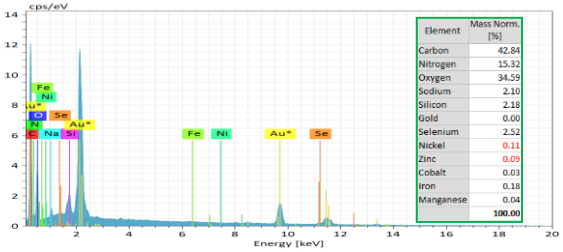
- Bioprocess for energy and chemical harvesting
- Metal biotechnology (critical raw metals and rare earth elements)
- Environmental bioremediation
- Chalcogen science and technology

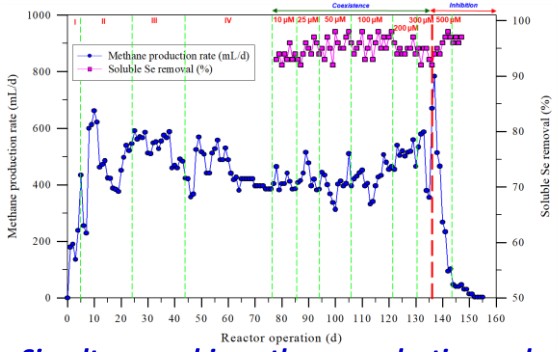
Batch (proof-of-concept) assays



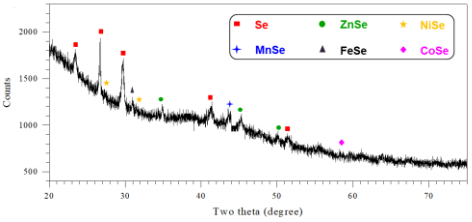


TEM and EDX showing biogenic elemental selenium nanoparticles

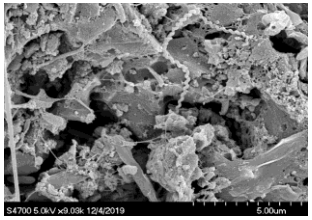
Up-flow anaerobic sludge bed reactor



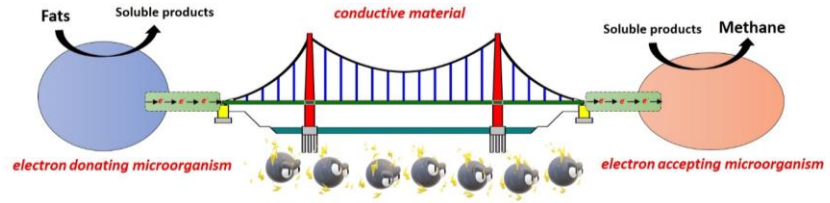
Simultaneous biomethane production and selenium bioremediation



XRD: Selenium and metal selenides



E-pili as electron shuttle



Conductive material amended anaerobic digestion

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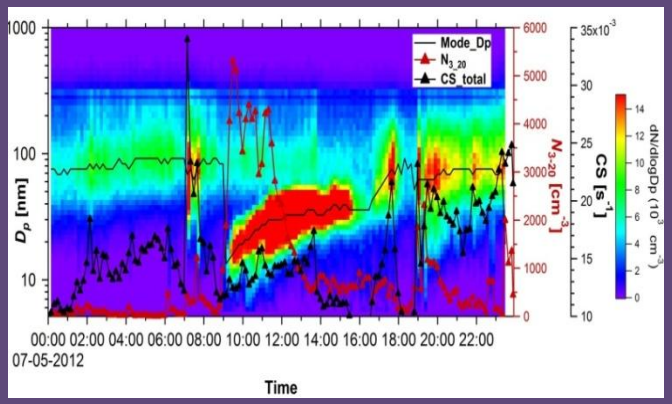
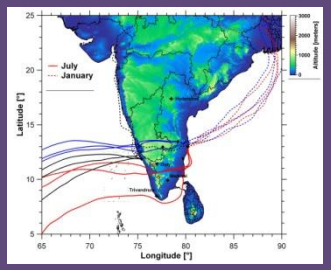
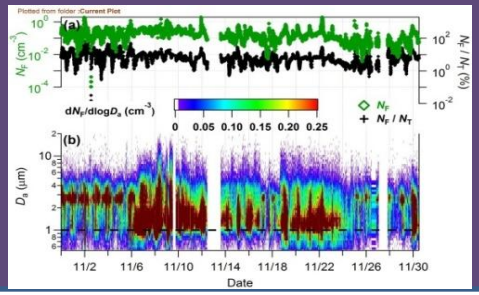
- Properties and interaction of atmospheric aerosols including bioaerosols
- Role of atmospheric aerosols in Earth system science
- Aerosol cloud precipitation interaction – Indian monsoon

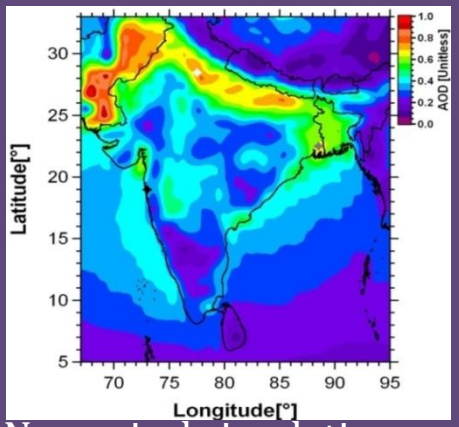




Field campaigns



Laboratory studies



Numerical simulations

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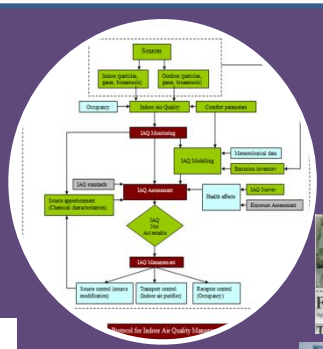
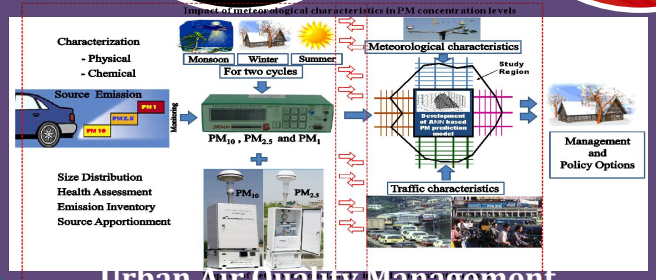
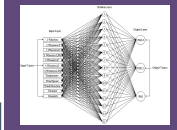
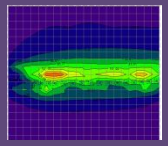
RESEARCH INTERESTS	
Urban Air Quality Management	Emission inventory, air quality monitoring, modelling , source-receptor modelling and control strategies
Vehicular Pollution Modelling	Deterministic, statistical and artificial neural network approaches
Indoor Air Quality	Monitoring, modelling and control strategies
Industrial Air Pollution Control	Design of air pollution control equipments and environmental impact assessment
Environmental data analysis	Multivariate data analysis and environmental auditing



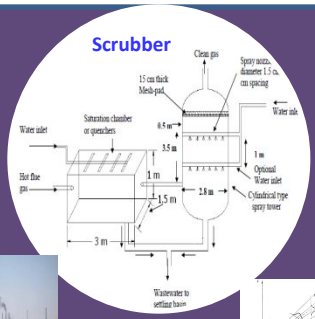


Urban Air Quality Management

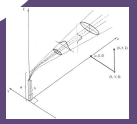




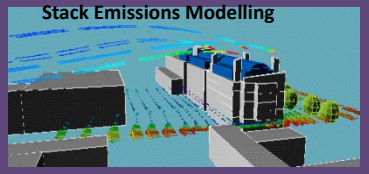
Indoor Air Quality Management



Environmental Pollution Index



Stack Emissions Modelling



Industrial Pollution Control