

List of presentation topics

Electrochemical Energy Storage & Materials for Energy Conversion Systems

- Vanadium Redox Flow Battery System Development, Performance and Economic Analysis
- Detailed Modelling of Vanadium Redox Flow Batteries
- Design and development of a large scale metal hydride tank for stationary applications considering heat transfer challenges
- Organic redox flow batteries
- Thermal management systems in Lithium-ion batteries
- Modelling of vanadium redox flow battery
- Thermodynamic behaviour of hydrated hybrid perovskite.

Computational Fluid Dynamics

- CFD based free surface modelling and simulation of partially filled single media thermal storage tank
- Numerical simulation of coal gasification using a drop tube furnace.
- CFD Based Simulation and Free Surface Modelling of Molten Salt Based Single Media thermal Storage tank.

Energy Systems: Modelling and Analysis

- Non-linear stability analysis of nuclear reactors: out of phase oscillations in Boiling Water Reactors
- Feasibility analysis of hyperloop
- Emulation of electric Vehicle using a regenerative dynamometer system
- Model predictive control for energy systems in buildings
- Analytical Hierarchy Process
- Comparative techno-economic analysis for wet flue gas desulphurization in an Indian power plant using different coals
- Techno-economic study and development of a smart window
- Real-time simulation of vector controlled induction motor drive in FPGA
- Optimal sizing and siting of Distributed Generators, capacitors and battery in a microgrid
- Investigation of natural convection in differentially heated vertical cavities
- Assessing the employment impacts of alternate energy scenarios
- Multi-Objective Financial Pinch Analysis

Solar Photovoltaic and Solar Thermal Systems

- Experimental analysis of single media single tank thermal energy storage system.
- Optimisation of solar thermal system with thermocline storage tank



- MPPT algorithm for thin film PV modules placed on building facade under partial shading condition
- Effect of partial shading on thermal performance and reliability of c-Si PV modules
- TRNSYS modelling and analysis of solar thermal power plants for Indian climatic conditions
- Techno-economic analysis of Hybrid solar PV-CSP technology for Indian Climatic conditions
- Experimental analysis of single media single tank thermal energy storage system.
- Design, Development and testing of 3 kW Linear Alternator for Stirling Engine

Grid Integration and Wind Energy

- Investigation of pulse width modulation technique on DC link current of voltage source inverter
- Smart distribution system and its grid support capability
- Dynamic stability of a wind power plant
- Grid support from Electric Vehicles
- Optimal placement and sizing of Volt/VAR sources using reconfiguration CVR and reconfiguration for peak demand reduction in islanded networks
- Low voltage ride through capabilities of wind power plants
- Techno-Commercial Study of Off-grid Solar Solutions with Super-efficient Technologies
- Analysis and assessment of microgrid options
- Secure and stable grid integration of wind energy.
- Model predictive control of voltage source inverter fed squirrel cage induction motor drive

Biomass Technology

- Oxy-steam gasification of garden waste for power production using waste heat recovery for enhanced performance and plant economy
- Techno-economic analysis of bioethanol from 2nd generation feedstock
- Diffusion of Innovation: The Case of Twisted Capes
- Study of the effect of reactive environment (CO_2 , N_2) on single particle biomass pyrolysis using experimentation and artificial neural network
- Biomass utilization in power generation
- Lab and field testing of a biomass fed cookstove
- Optimisation of a biochar based bio-refinery
- Techno-economic analysis of agro waste management

