National Institute of Technology Rourkela

Departmental Seminar

Seminar Title	: Prognostics of Li-ion Batteries Using a Novel C-rate Dependent Aging Model
Speaker	: Nilima Gadkar (522ee1005)
Supervisor	: Prof. Arijit Guha
Venue	: Seminar Room (EE-205)
Date and Time	: 23 Jul 2025 (4:30 PM)
Abstract	: Some of the Battery energy storage systems (BESS), like battery-based solar cold storage systems operate with minimal fluctuation load current. A generalized aging model for this kind of system would be favorable for the predictive maintenance of Lithium- ion Batteries (LIBs). Considering this, a novel C-rate dependent aging model has been developed. The model developed is framed into the forecasting structure for the remaining useful life (RUL) prediction of LIBs using a particle filter (PF) framework. To validate the proposed methodology, comprehensive testing was conducted, including Cyclic Aging Tests (CAT) and Reference Performance Tests (RPT), on 2.6Ah LCO cells. The result shows a prediction error of just 18.60Ah, after training the model with the first 900Ah accumulated throughput.