
Seminar Title	: Hybrid Nano metal ferrite for high-performance Supercapacitor
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Venue	: EE401
Date and Time	: 21 Jun 2024 (5.00 PM)
Abstract	: Metal ferrites show excellent electrochemical properties owing to the multiple oxidation states of the metal ions, making them more suitable for electrode materials in supercapacitor applications. Pure MnF and vanadium-doped MnF were successfully synthesized employing a simple hydrothermal method. Physical and Electrochemical properties $MnV_xFe_{2-x}O_4$ are investigated employing comprehensive characterization studies. X-ray diffraction with the ($2\theta = 35.4^\circ$) peak indicated that the mean size of the synthesized manganese ferrite nano crystallites was obtained to be 34.79 nm. FESEM analysis images confirmed the Spherical shape morphology of MnF. The super capacitive performances were studied by CV, GCD, and EIS in 3 molar KOH solution as electrolyte and the performance of Pure MnF and Vanadium doped MnF were compared. GCD has been carried out at different current density. As the current density increases, both the charging and discharge time decreases. An EIS study has been conducted, confirming that the supercapacitor shows resistive behaviour at high frequency and capacitive behaviour at low frequency. The ESR of MnF with Vanadium doping of ($x=0.1$) is found to be the lowest.