
Defence Seminar

Seminar Title	: Development of novel carbon dot hybrid sensors for the detection of environmental pollutants and biomarkers
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Supervisor	: Sasmita Mohapatra
Venue	: CY Seminar room, Hybrid mode
Date and Time	: 11 Apr 2025 (3 pm)
Abstract	: The aim of this doctoral research work is to develop <i>metal doped</i> carbon quantum dot sensors and to explore the practical applications of these sensors in the detection of the analytes in aqueous medium, real samples and biosystems. Mn doped CD(Mn-CD), Ag-doped CD(Ag-CD), and biosource derived carbon dot have been developed for the detection of environmental pollutants like arsenic and organoarsenic compounds, perchlorate, hexavalent Cr(VI). All these sensor probes can selectively detect the intended analyte in aqueous medium and plant samples. Further due to good translocation properties these sensor nanoprobe have been used to detect heavy metals in different parts of the plants through confocal imaging. In the direction of biomarker detection, two metal integrated carbon dot sensor probes have been designed for the detection of glycine, dopamine and Ca^{2+} in sweat. Due the unique combination of fluorescence and conductance properties along with molecular recognition, these sensors can detect analytes in both fluorescence and electrochemical mode. The details of our effort have been discussed in respective chapters.