[Scdt] SOTA - Aakanksha Jain - Dec 13th

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Date 2021-12-06 08:42
Priority Normal

Dear All,

Ms. Aakanksha Jain (Roll - 19102261) will deliver her State of the Art Seminar as per the following schedule.

Date: 13-12-2021
Time: 9 AM
Link:
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Time: Dec 13, 2021 09:00 AM India

Join Zoom Meeting
https://iitk-ac-in.zoom.us/j/92037130836?pwd=QjIyL3U2dTBKbVBnWFk3dlIyUHpuUT09

Meeting ID: 920 3713 0836
Passcode: 638108
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Title: 2D Material based gas sensors for detection of toxic gasses

Abstract: High emission rate of hazardous gasses has negative impact on human/animal health and bad consequences on the environment. Hence, monitoring of toxic gasses is of utmost significance for human and environmental protection. Gas sensors are utilized to detect noxious gases and organic vapours. These devices are suitable for several application fields like agricultural, military, environment, industries (manufacturing, pharmaceutical, biomedical, food, etc.) and numerous scientific researches. The sensor is employed as a chemiresistor which show change in electrical conductivity upon exposure to analyte gas, and this change will be correlated with concentration of the analyte gas. Various materials are explored as the sensing layer including metal oxides, conducting polymers, and carbon nanotubes. Among these materials, conventionally metal oxide was being used for detection of hazardous gasses due to their high response but high operating temperatures limit their application. Conducting polymers such as PANI emerge as an alternative to metal oxides, operating at room temperature, but low sensitivity forestalls their application. Room temperature operation with good sensitivity is seen in carbon nanotubes, but complex synthesis and long recovery time obstructs their applications. Two-dimensional (2D) materials have unique electronic structure attracting researchers interests for their use in gas sensing applications. These materials have potential to overcome the mentioned shortcomings and provide improved sensor performance at room temperature. A comprehensive literature review on 2D materials structure, their detection mechanism, and significance of such sensor will be discussed.

All are welcome.

Thanks and best wishes,

Siddhartha Panda
Thesis supervisor

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