



Contribution ID: 184

Type: **Poster Presentation**

IMPROVEMENT OF GAS SENSING SELECTIVITY OF VANADIUM PENTOXIDE NANO-STRUCTURES TOWARDS SULPHUR DIOXIDE BY GOLD DOPING

Vanadium pentoxide (V_2O_5) is a semiconductor metal oxide material with properties that makes it suitable for gas sensing applications. These properties are strong catalytic activity, high conductivity and structural ability. Despite this, literature showed that low selectivity and high operating temperatures still limit its functionality in practice. Sulphur dioxide (SO_2) is a highly toxic greenhouse gas with an unpleasant odour that is emitted primarily by the combustion of fossil fuels and volcanic eruptions. Even at concentrations as low as 5ppm, SO_2 can cause serious health issues to human lives. Fabrication of highly selective and low operating temperature SO_2 gas sensors are of utmost importance. The current work presents low temperature and SO_2 selective gas sensor developed by doping V_2O_5 nanoparticles with Au using the hydrothermal synthesis method. Possible gas sensing mechanisms of the combined materials in the presence of SO_2 gas are also presented.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

MSc

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Session Classification: Physics of Condensed Matter and Materials

Track Classification: Track A - Physics of Condensed Matter and Materials