**Development of Discrimination Techniques for the Detection of Single and Multicomponent Gas Mixture using Tin Oxide (SnO2) based Sensor Array**

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Tin oxide (SnO2) based gas sensors have been extensively used to detect the single target gas and multi-component gas mixtures presence in ambient atmosphere by optimizing the different discrimination techniques. The advanced discrimination techniques employed the pattern recognitions which adopted one of the techniques such as Artificial Neural Network (ANN). To achieve high recognition rates, a several sensors are used which forms the sensors array. The commercially available sensors based on tin oxide as sensing elements are TGS class of FIGARO, USA, Inc. The gas sensor array associated with ANN can be used as Odor sensors. ANN has been used as a powerful tool for processing the data and pattern thus formed have a lot of hidden information in it. It can be extracted useful as nature and concentrations, multi-component gas mixtures and the odor of a composite mixture. The development of discrimination techniques is a vast area for advanced detection and identification of gas and residue components, toxic gases etc. The tin oxide based sensor technology may refer to a well-established technology after repeating the number of

experiments on improving the discrimination techniques applicable to single as well as multi­ components gas mixtures.

Keywords: Tin Oxide, Pattern recognition, Artificial Neural Network, Sensor Array.

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