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Chemical Sensor Array Modeling: Application to Resistive Based Chemo Sensors

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Abstract: The aim of paper is to develop analytical mathematical models that describe the thermo dynamical equilibrium of resistive chemical sensor arrays /mixture of vapors multi-system. By using the Gibbs Duhem formalism, state equations in differential form, that the variations of intensive quantities (e.g. sensors partial sensitivity) as function of the gas mixture components concentrations and sensor array parameters describe, have been developed. Moreover, the responses of the sensor arrays as function of gas mixture components concentrations were modeled.

Keywords : resistive chemo-sensors, sensor array, vapors mixture, modeling, Metal Oxide Sensors (MOS), Conducting Polymer Sensors