Metal oxide (SnO_2) semiconductor gas sensor

The conductivity of tin dioxide (SnO_2) metal oxide semiconductor materials changes according to gas concentration changes. This is caused by adsorption/desorption of oxygen and reaction between surface oxygen and gases. These reactions cause a dynamic change of electric potential on SnO_2 crystal and results in the decrease of sensor resistance under the presence of reducing gases such as CO, methane, hydrogen. The figures below indicate the sensing mechanism of the SnO_2 gas sensor.