

Air quality monitoring through solid state gas sensor systems in urban environment

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Single and mixed nano-crystalline semiconductor oxides were obtained through wet-chemistry synthesis in form of powders. They were used as functional materials to produce metal oxide (MOX) thick film gas sensors to be used in air pollutants monitoring (i.e. carbon monoxide, nitrogen oxides, ozone and the total benzene, toluene, ethylbenzene, and xylene). Portable monitoring units based on these sensors were fabricated, including electronics for acquisition, processing and wireless data transmission. Long term trials in the field were carried out placing the sensor units near to the conventional fixed-site monitoring stations. The comparison between the temporal evolution of the conductivity changes of the sensors with the pollutants concentrations and those measured by the analytical instruments shows a good agreement for each sensor.

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