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Gas Sensor Based On a One-Dimensional Nano-Grating Au/ Co/ Au/ TiO2 Magneto-Plasmonic Structure

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Abstract : Gas sensors based on magneto-plasmonic (MP) structures have attracted much attention due to the high signal to noise ratio in these type of sensors. In these sensors, both the plasmonic and the MO properties of the resulting MP structure become interrelated because the surface Plasmon resonance (SPR) of the metallic medium. This interconnection can be modified the sensor responses and enhanced the signal to noise ratio. So far the sensor features of multilayered structures made of noble and ferromagnetic metals as Au/Co/Au MP multilayer with TiO2 sensor layer have been extensively studied, but their SPR assisted sensor response need to the krestchmann configuration. Here, we present a systematic study on the new MP structure based on one-dimensional nano-grating Au/ Co/ Au/ TiO2 multilayer to utilize as an inexpensive and easy to use gas sensor.

Keywords : Magneto-plasmonic structures, Gas sensor, nano-garting
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