

Design and Analysis of CO₂ Sensor Using COMSOL Multiphysics® Software

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Abstract

In this paper, a carbon dioxide sensor is introduced. At present many CO₂ sensors are available, but they all required power in the order of few watts, therefore they are not suitable for long term unattended operation. This paper gives the brief description of CO₂ sensor modeling using the MEMS Module of COMSOL Multiphysics® software. These sensors are inexpensive, highly selective and sensitive. We found the results of CO₂ sensor electric potential variation at 350°C temperature with high reliability using less power. This advance will enable a new class of portable CO₂ sensors to be constructed with sub-millimeter size and microwatt power.

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Figures used in the abstract

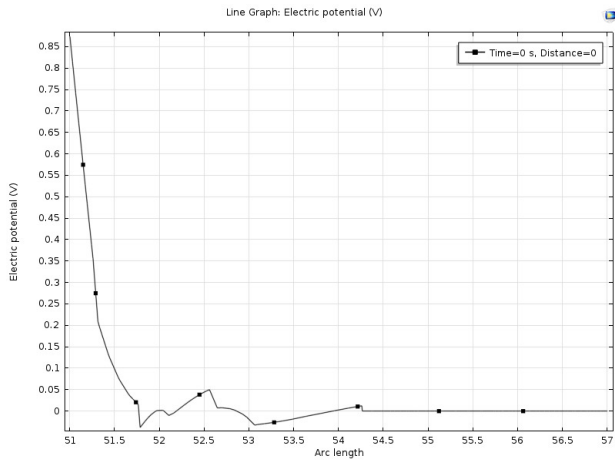


Figure 1: Line graph of Electrical Potential Versus Arc length for bounded points.

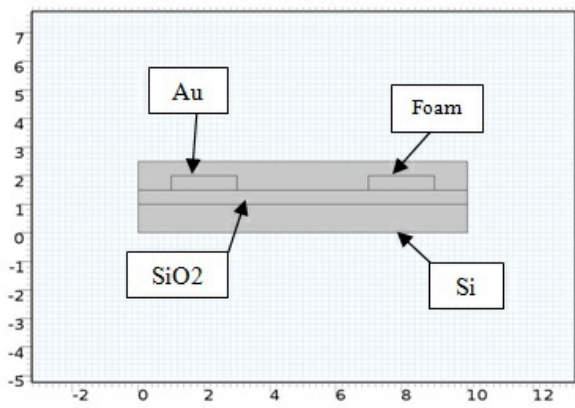


Figure 2: 2 D geometry of Sensor.

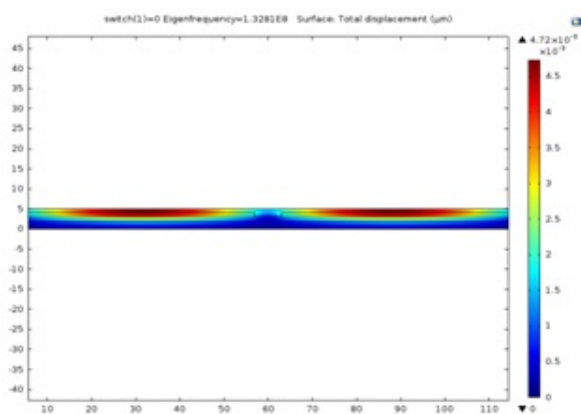


Figure 3: Electrical Poetical Variation.