

How to Improve the Performance of Porous Silicon-Based Gas and Vapor Sensors? Approaches and Achievements

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Abstract

It is shown that, along with the advantages, sensors based on porous silicon (PSi) have disadvantages that inhibit their widespread use. The parameters of PSi which can affect the performance of PSi-based sensors are considered in detail, and approaches are analyzed that allow for the improvement of the main characteristics of PSi-based gas and vapor sensors. It is concluded that despite the progress made in terms of improving the sensitivity, selectivity, and stability of PSi-based sensors, further research and development in this direction is necessary, as the existing methods do not provide the required stability of the characteristics and selectivity of their response.