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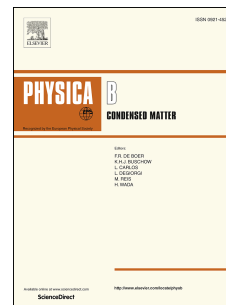
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## Brief Review of Monolayer Molybdenum Disulfide Application in Gas Sensor

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### Abstract:

With the continuous increase in technological applications, the progress of new semiconductor materials continues to be a significant research field. In recent years, new materials such as molybdenum disulfide, has been researched as a substitute for graphene and silicon. The monolayer molybdenum disulfide ( $\text{MoS}_2$ ), one of the promising 2D materials with a direct bandgap has high potential for applications in nano electronic devices, energy storage, photocatalysts, and chemical sensors. As such, this paper examines the present gas-sensing applications of  $\text{MoS}_2$  and have been compared it with other nanomaterials.

Keywords:  $\text{MoS}_2$ , nano-electronics, gas sensor

### 1. Introduction

Since the discovery of graphene in 2004, two-dimensional (2D) layered materials have drawn a lot of attention from materials scientists. With fascinating unusual properties, 2D layered materials could be used in field-effect transistors, photosensors, photovoltaics, ultracapacitors, composite materials, and photocatalysts. Typically, 2D layered materials have strong in-plane bonds and weak van der Waals bonds between the layers. Interestingly, physical, chemical, and

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