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Microstructurally Engineered Perovskite Gas Sensors

Engineered nickelate films provide highly sensitive, low-cost hydrogen detection for safety-critical environments.

Researchers at Purdue University have fine-tuned a new class of ReNiO3 based perovskite sensors for hydrogen gas (H2) detection. The sensors operate at a significantly higher sensitivity as compared to the current technologies. Traditional Hydrogen gas sensors have only been used so far in applications such as alarm systems which require rough estimation of H2 sensing. Selectivity and responsivity are a bottleneck with cost effectiveness. The specific lattice structure of the sensors developed by Purdue researchers ensures unique hydrogen capture capability. In testing at Purdue in the presence of H2, the resistance of the sensor increased rapidly up to several orders of magnitude giving a strong and accurate readout. This could help people working in critical conditions with a highly sensitive hydrogen sensor.

Advantages:

-Adaptable

-Increased accessibility

-Easy to operate

-High performance

-Cost effective

Potential Applications:

-Hydrogen sensor

-New materials research

TRL: 2

Intellectual Property:

Technology ID
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Category
Chemicals & Advanced Materials/Specialty & Performance Chemicals
Energy & Power Systems/Hydrogen & Fuel Cell Systems

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