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Review

Ordered porous metal oxide semiconductors for gas sensing

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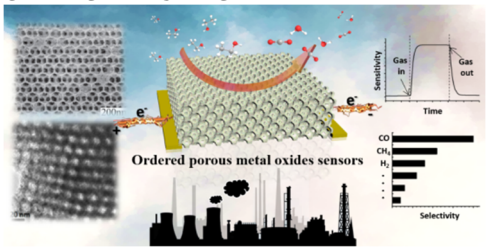
GRAPHICAL ABSTRACT



This review gives a comprehensive summary about the porous metal oxides with focus on the synthesis methods, structure related properties, as well as the modification strategies for gas sensing improved performances.

ABSTRACT

Among various gas sensing materials, metal oxide semiconductors have shown great potential as resistive type sensors. The ordered porous structural metal oxide semiconductors with well-defined meso- or macro-pores chemically synthesized *via* soft-templating method and nanocasting strategy have high porosity, highly interconnected pore channels and high surface area with enormous active sites for interacting with gaseous molecules. These features enable them good performance in gas sensing, including high sensitivity, fast response and recovery, good selectivity. This review gives a comprehensive summary about the porous metal oxides with focus on the synthesis methods, structure related properties, as well as the modification strategies for gas sensing improved performances.

Keywords:
Porous materials
Metal oxides
Templating-synthesis
Gas sensing

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