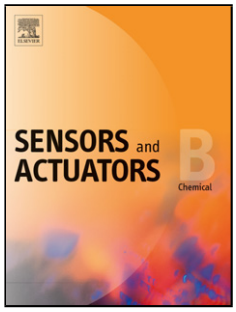

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Oxygen vacancies and grain boundaries potential barriers modulation facilitated formaldehyde gas sensing performances for In_2O_3 hierarchical architectures

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Highlights

● Unique In_2O_3 architectures are fabricated by a rapid and facile route.

● Nanoparticles-assembled In_2O_3 architectures present hierarchical porous structure.

● Oxygen vacancies and potential barriers jointly enhance gas sensing performances.

● Gas diffusion, gas adsorption and electron transfer are effectively improved.

● In_2O_3 architectures based sensors show excellent formaldehyde sensing properties.