

Abstract Submitted
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Enhanced sensitivity and reliability of a self-cleaning room temperature gas sensor HAIZHOU REN, HAIBIN HUO, PENGTAO WANG, CONG WANG, SAI LIU, MENGYAN SHEN, HONGWEI SUN, MARINA RUTHS, UML, UML DEPARTMENT OF PHYSICS CHEMISTRY AND ENGINEERING TEAM — A room temperature SnO₂ gas sensor with different sensitivity to CO and NH₃ gases was fabricated on a silicon substrate with nanostructures formed by femtosecond laser irradiation in water. After deposition of a silane monolayer, the nanostructured sensor surface showed super hydrophobic wetting behavior and exhibited self-cleaning properties like lotus leaves. The reliability of the self-cleaning of the sensor was investigated under thousands of cleaning cycles and characterized by measurement of the sensitivity change during this cleaning process.

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