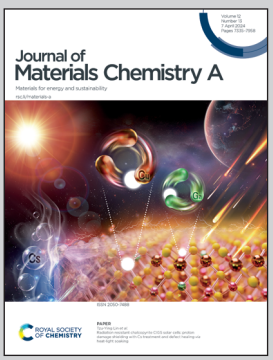
Showcasing a study from the laboratory of Professor Tetsuya Kida of Kumamoto University, Japan.

Ethanol sensing mechanism of ZnO nanorods revealed by DRIFT spectroscopy and DFT calculations

In situ DRIFT spectroscopy was employed to identify the intermediates that form on the surface of a sensor comprised of ZnO nanorods during its detection of ethanol. DFT calculations were then performed to determine the effects of these intermediates on the electronic properties of the ZnO. From our experimental and theoretical results, we concluded that the dehydrogenation of ethanol to acetaldehyde and its further oxidation to acetate are key reactions in the ethanol gas sensing mechanism of the (10-10) surface-dominated ZnO nanorods.

As featured in:



See Jonas Karl Christopher N. Agutaya, Tetsuya Kida *et al., J. Mater. Chem. A*, 2024, **12**, 7564.

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