

Zinc stannate microcubes with integrated microheater for low-temperature NO₂ detection

*Nirav Joshi^{*1,2}, Hu Long^{3,4}, Pranav Naik⁵, Arvind Kumar⁶, Valmor R. Mastelaro², Osvaldo N. Oliveira Jr², Alex Zettl⁴, Liwei Lin¹*

¹Department of Mechanical Engineering, University of California, Berkeley, CA, USA

²São Carlos Institute of Physics, University of São Paulo, CP 369, São Carlos 13560-970, São Paulo, Brazil.

³Department of Mechatronics Engineering, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, HuBei 430074, China

⁴Department of Physics, University of California Berkeley at Berkeley, Materials Sciences Division, Lawrence Berkeley National Laboratory, Kavli Energy NanoSciences Institute, Berkeley, CA 94720 USA

⁵Department of Physics, Goa University, Taleigao Plateau, Goa, 403206, India.

⁶Department of Physics, Chaman Lal Mahavidyalaya, Haridwar, India.

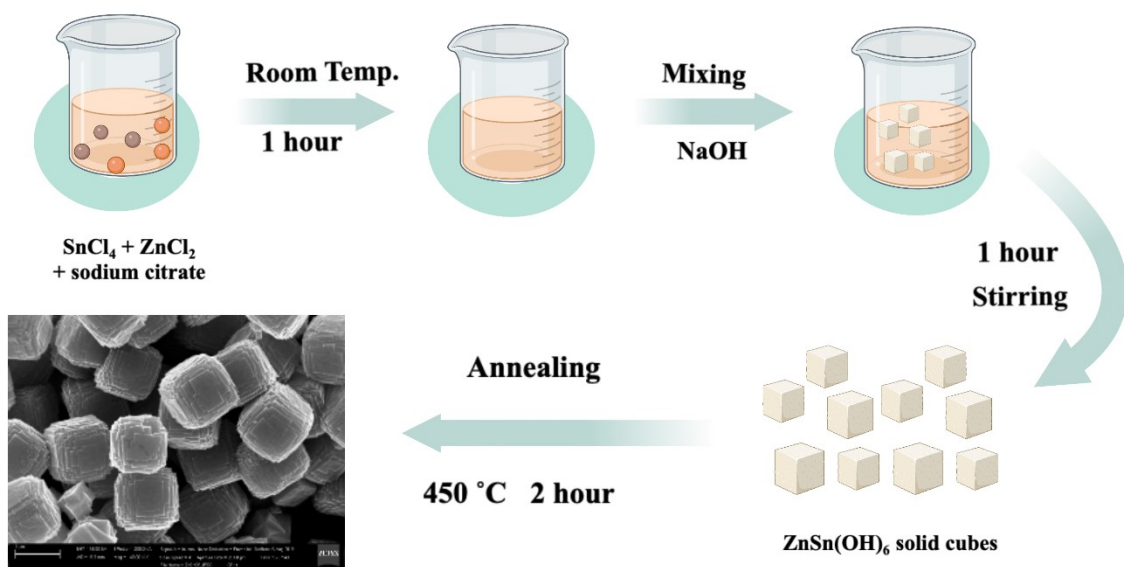


Figure S1: Illustration of the synthesis process of ZnSnO₃ microcubes.

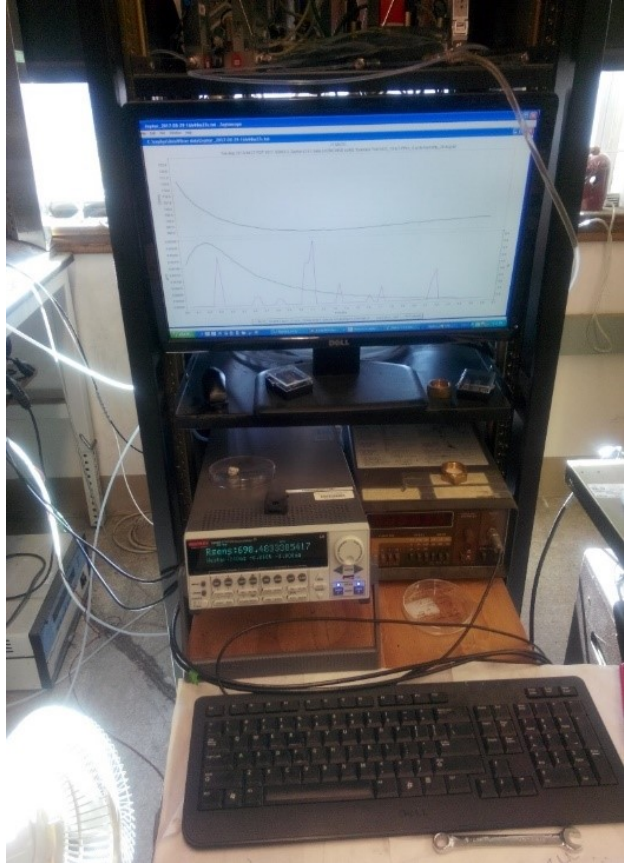
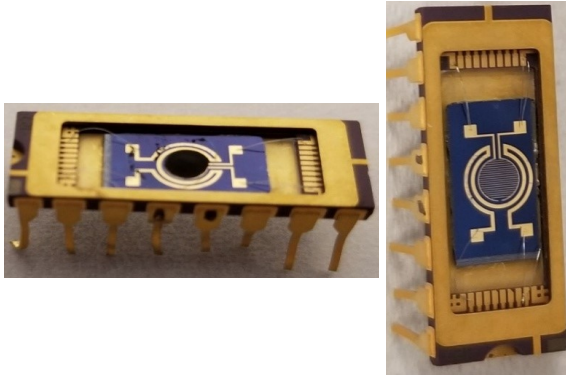
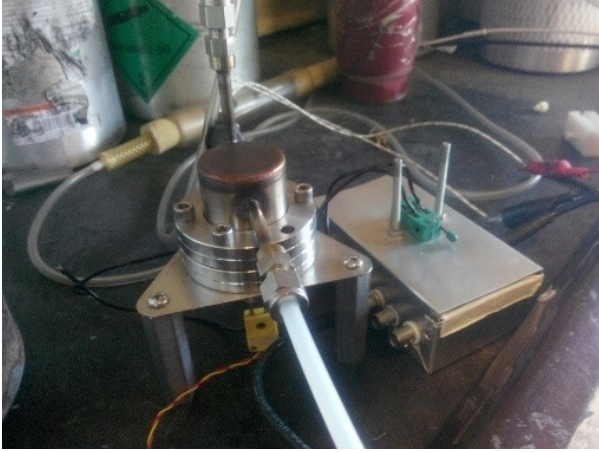


Figure S2: Dynamic sensing unit and microsensors with ZnSnO₃ sensing film

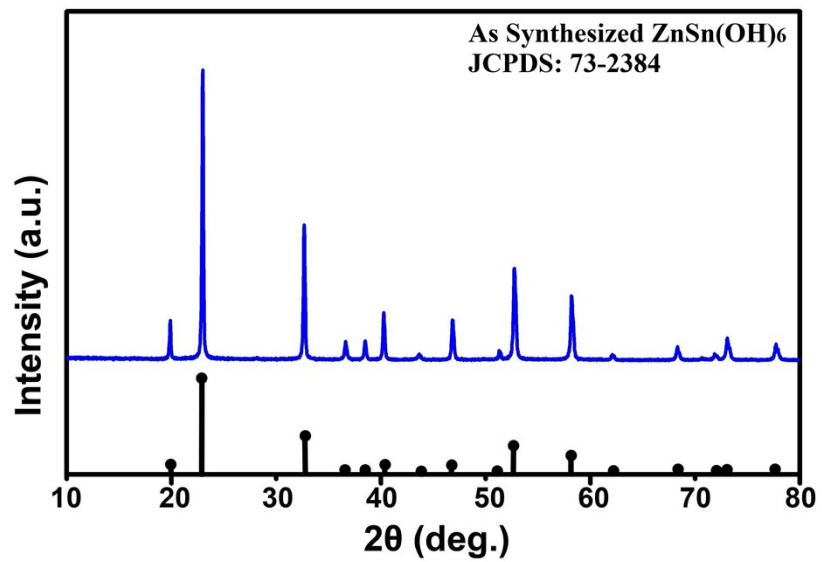


Figure S3: XRD pattern of as-synthesized ZnSn(OH)₆ material.

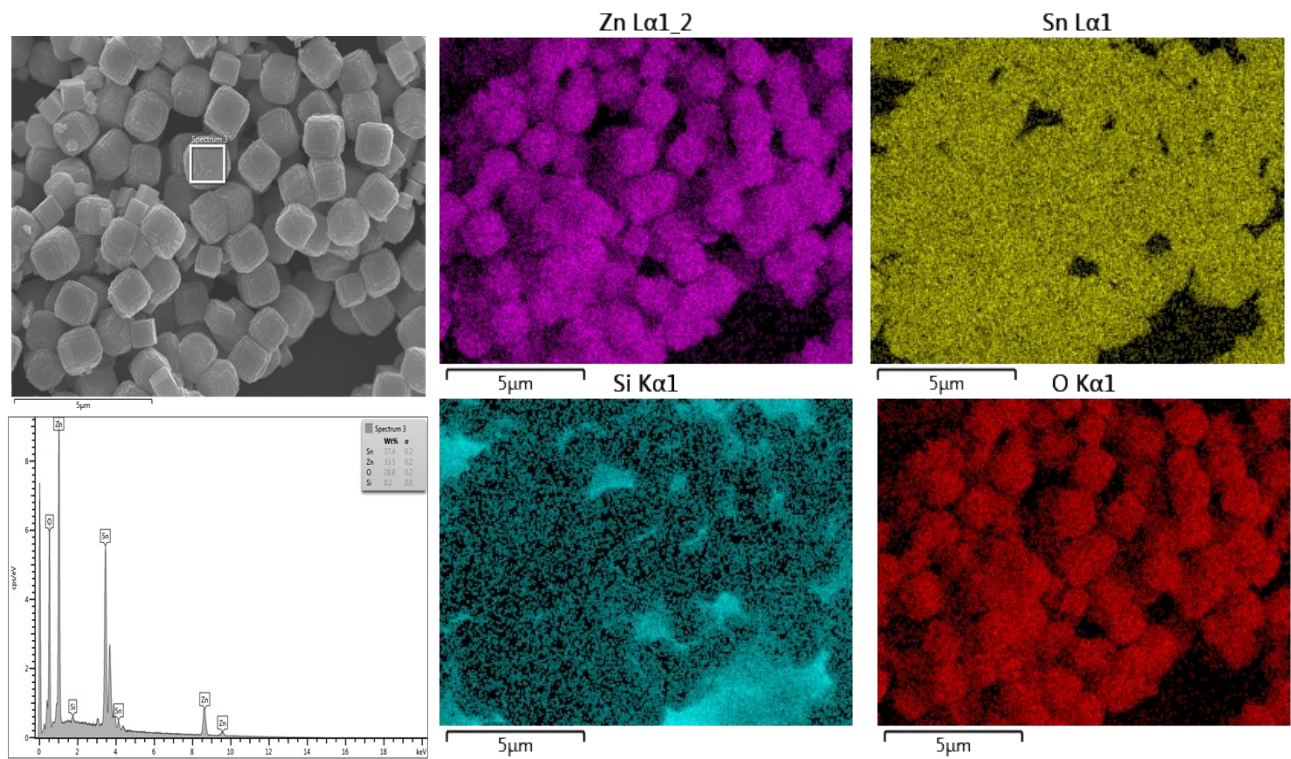


Figure S4: EDS spectra and elemental mapping of ZnSnO₃ microcubes

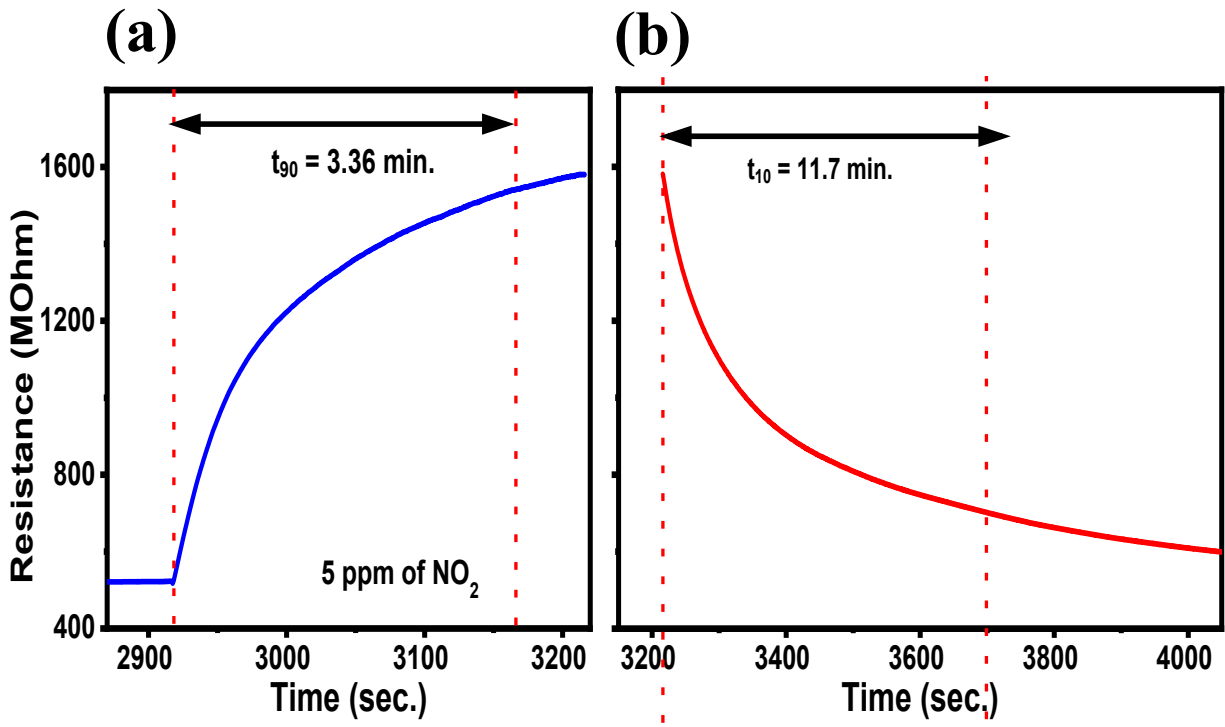


Figure S5 (a) Response and (b) Recovery behavior of ZnSnO₃ sensor to 5 ppm NO₂ at 110 °C.