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Authors: C.S. Prajapati, Navakanta Bhat

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Self-heating oxidized suspended Pt nanowire for high performance hydrogen sensor

C. S. Prajapati^{1*} and Navakanta Bhat^{1,2}

¹Centre for Nano Science and Engineering, Indian Institute of Science, Bangalore-560012,
Karnataka, India

^{1,2}Department of Electrical Communication Engineering, Indian Institute of Science,
Bangalore-560012, Karnataka, India

*Corresponding author: C. S. Prajapati, Tel: +91-7259475116
E-mail address: chandrashekhar@iisc.ac.in

Highlights

- Pt nanowire fabrication by e-beam lithography, sputtering and lift-off processes.
- Suspended sub-100 nm diameter nanowire for low heat dissipation.
- Joule heating assisted oxidation of Pt nanowire under oxygen ambient.
- Room temperature hydrogen detection with ultra-low power consumption (~45 nW).
- Oxidized Pt/PtO_x nanowire array for sub-ppm hydrogen detection with 500 ppb LOD.

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