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Nitrogen dioxide and Ammonia Gas Sensing by Tungsten Trioxide Film

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Abstract content
   (Max 300 words)
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Special chars

Tungsten oxide film was reactively-sputtered on alumina substrate with Pt-contacts from a pure W target and argon/oxygen-plasma. The synthesized and annealed tungsten oxide was characterized with XRD, XPS, Raman spectroscopy, UV/Vis spectroscopy and Resistance as a function of Temperature, and found to be stoichiometric triclinic phase tungsten trioxide. The pure film was used to sense ppm concentrations of nitrogen dioxide and ammonia at room-temperature and 100^oC. At 100^oC, The sensitivity of the film towards nitrogen dioxide increased, and decreased significantly towards ammonia. This was due to tungsten trioxide being an n-type metal-oxide semiconductor which preferred the reaction with the oxidizing gas over the reducing gas.

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Yes

Level for award
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PhD

Main supervisor (name and email)
and his / her institution

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