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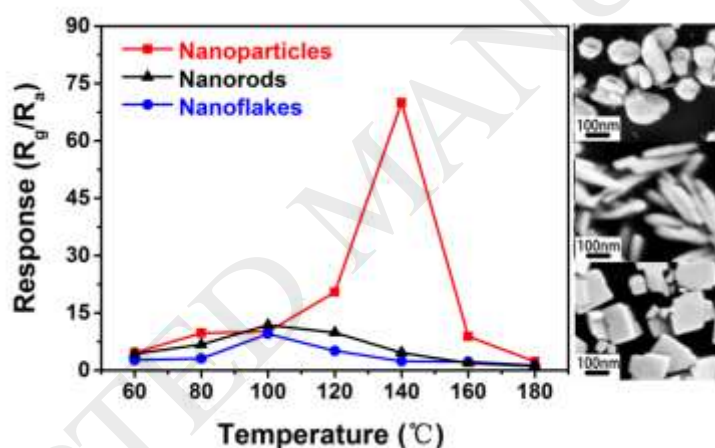
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### Graphical Abstracts



WO<sub>3</sub> nanoparticles, nanoflakes and nanorods are synthesized via a facile solvothermal route. The organic solvents with different polarity play an important role in regulating the morphologies of as-synthesized WO<sub>3</sub>. Gas sensor based on WO<sub>3</sub> nanoparticles exhibits faster response and recovery behaviour and much higher response toward Cl<sub>2</sub> compared to those based on nanoflakes and nanorods. It is suggested to arise from good crystallinity and high concentration of oxygen vacancy at the surface of WO<sub>3</sub> nanoparticles.

### Highlights

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