

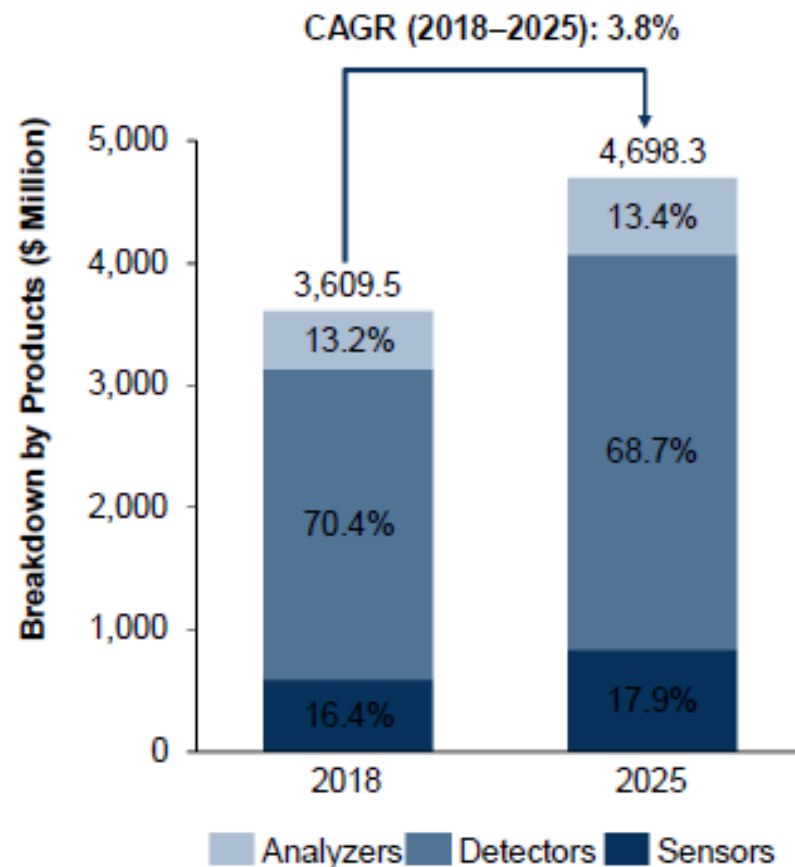
Technology Brief of CityU's IP

- A Gas Sensing Material Synthesis Method based on Controlled Crystal Growth (IDF#879, US 63/089,185)

A Gas Sensing Material Synthesis Method based on Controlled Crystal Growth

Background:

Total Gas Sensors, Detectors, and Analyzers Market: Segment Growth Analysis, Global, 2018–2025

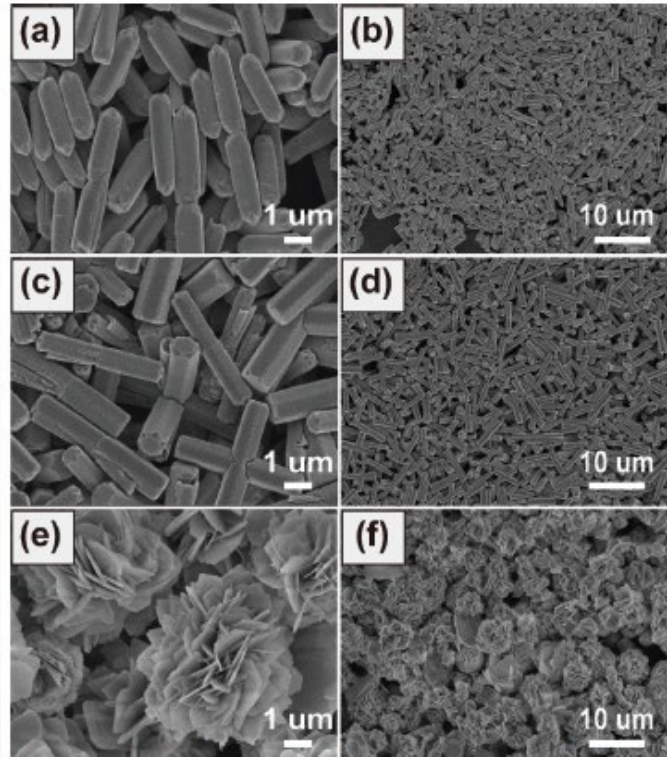
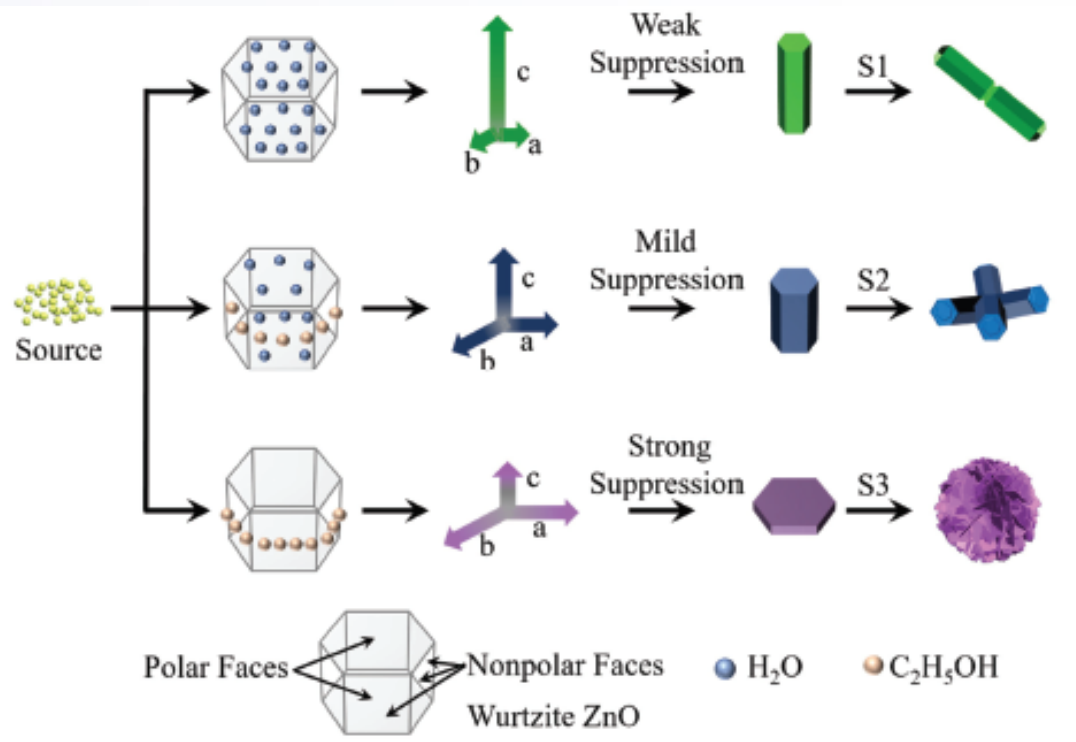


- Portable detectors are witnessing an increase in deployment. Their compact size, light weight, and freedom of mobility are the key reasons for the growing adoption of portable detectors.
- The fixed gas detectors are quite robust and have a long lifespan, making the average replacement rate of these devices about 10 years. In addition, the implementation of strict regulations by government bodies requires that end users are compliant. As such, they are increasing the use of fixed gas detection systems.
- The increased adoption of non-dispersive infrared (NDIR) gas analyzers is due to their ability to analyze multiple gases in harsh environments, the absence of cross-sensitivity, longer life spans, and the low cost of ownership.
- Electrochemical gas sensors are most used because of their technical superiority in terms of accuracy, their ability to detect a wide range of gases, their high adaptability, and their low cost.

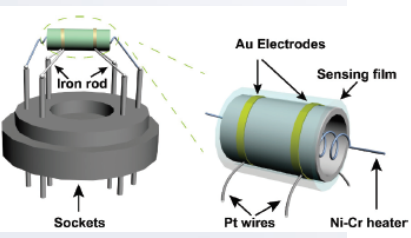
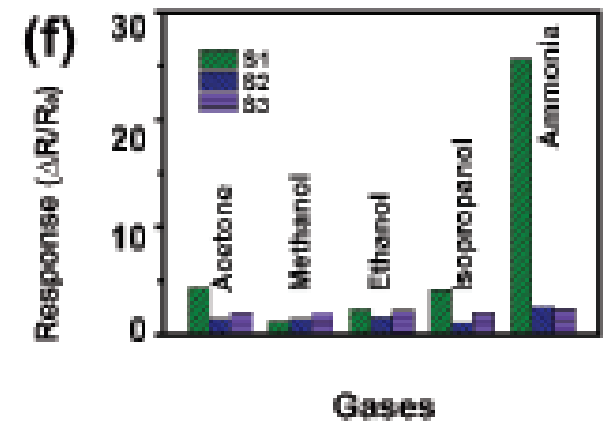
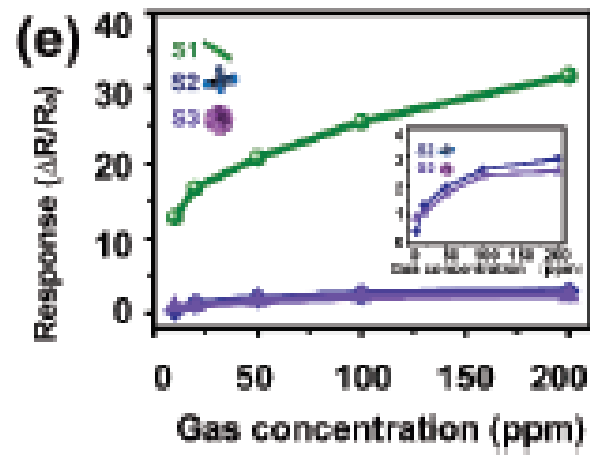
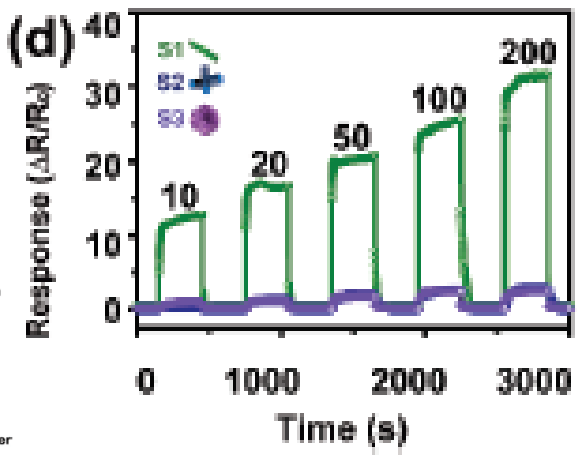
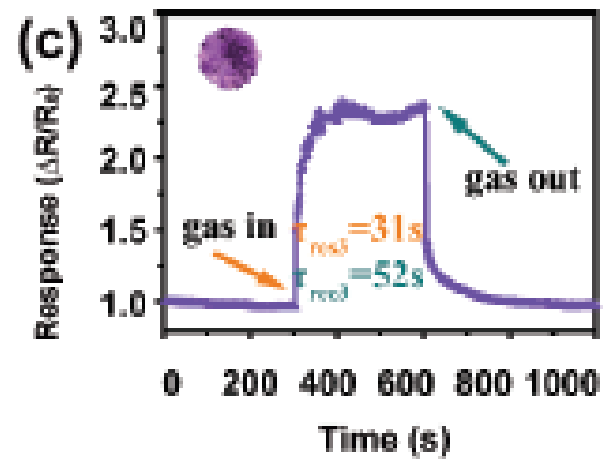
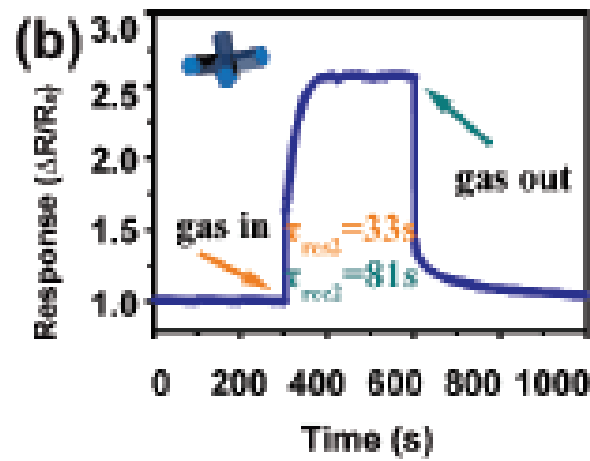
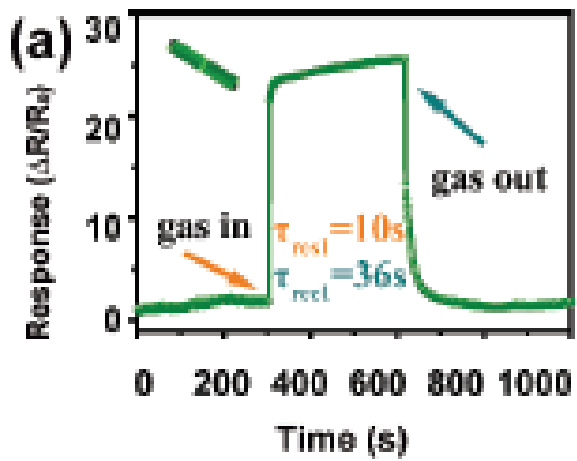
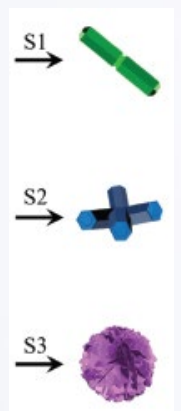
A Gas Sensing Material Synthesis Method based on Controlled Crystal Growth

Technology:

- A template-free synthesis method achieves controllable TMO nanostructured morphologies
- By tuning the solvent polarity to promote/suppress the growth of specific crystallographic dimension



A Gas Sensing Material Synthesis Method based on Controlled Crystal Growth





A Gas Sensing Material Synthesis Method based on Controlled Crystal Growth

Advantages:

- Control the nanostructured morphologies of TMO for desirable gas sensing properties
- Improve sensitivity and response-time of the gas sensor
- Improve resilience to long term drift

Applications:

- Gas sensors for detecting toxic airborne contaminants based on TMO as the sensing material



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