Electronic Supplementary Material (ESI) for CrystEngComm. This journal is © The Royal Society of Chemistry 2015

Electronic Supplementary Information (ESI)

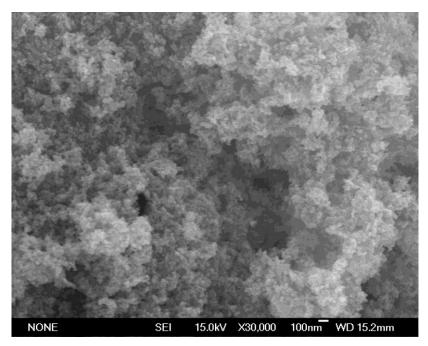
Porous Corundum-type In₂O₃ Nanoflowers: Controllable Synthesis, Enhanced Ethanol-sensing Properties and Response Mechanism

Liping Gao, ^a Zhixuan Cheng, ^{*b} Qun Xiang, ^b and Jiaqiang Xu^{*a,b,c}

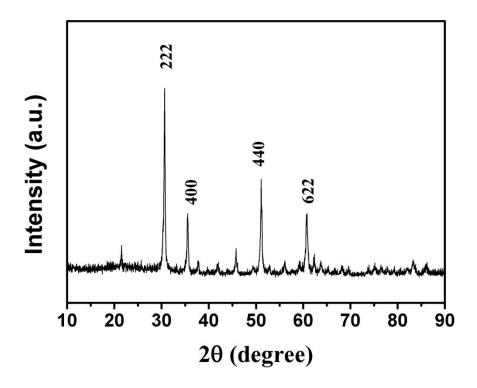
^a Department of Physics, College of Science, Shanghai University, Shanghai, 200444, China E-mail: xujiaqiang@shu.edu.cn; Tel: +86 21 66132701

^b NEST Lab, Department of Chemistry, College of Science, Shanghai University, Shanghai, 200444, China.

^c State Key Laboratory of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, 200050, China



 $\textbf{Fig.1s} \ TEM \ images \ of \ In_2O_3 \ synthesized \ using \ CTAB \ as \ surfactant.$



 $\label{eq:Fig.2s} \textbf{Fig.2s} \ \textbf{XRD} \ of \ In_2O_3 \ synthesized \ by \ controlling \ the \ pH \ value \ is \ 8. \ (NaOH \ was \ added \ to \ control \ the \ pH \ value)$

Gas sensing properties of the sensors

$$O_2(g) \leftrightarrow O_2(ad)$$
 (1)

$$O_2 (ad) + e^- \leftrightarrow O_2^- (ad)$$
 (2)

$$O_2^-(ad) + e^- \leftrightarrow 2O^-(ad)$$
 (3)

$$O^{-}(ad) + e^{-} \leftrightarrow O^{2-} \quad (ad)$$
 (4)

$$C_2H_5OH \leftrightarrow CH_3CHO + H_2$$
 (5)

$$CH_3CHO (ad) + 5O^-(ad) \leftrightarrow 2H_2O (g) + 2CO_2 (g) + 5e^-$$
 (6)