

**Promoting effect of zirconium oxide on Cu-Al<sub>2</sub>O<sub>3</sub> catalyst for the hydrogenolysis of  
glycerol to 1,2-propanediol**

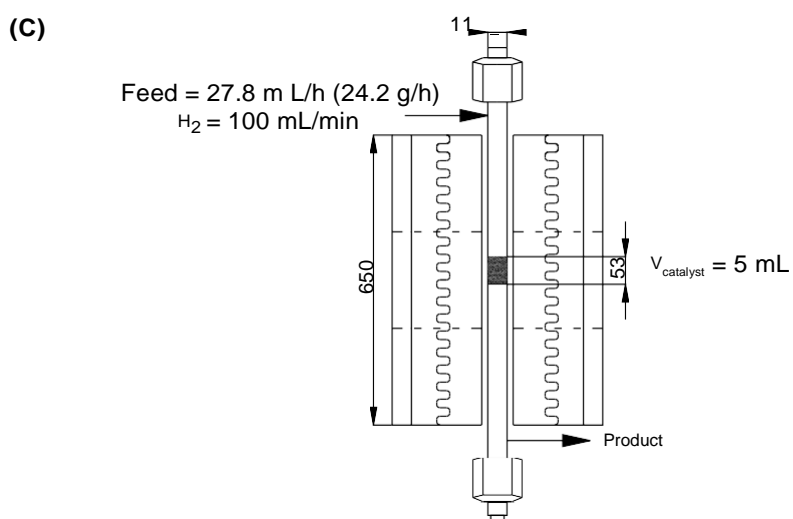
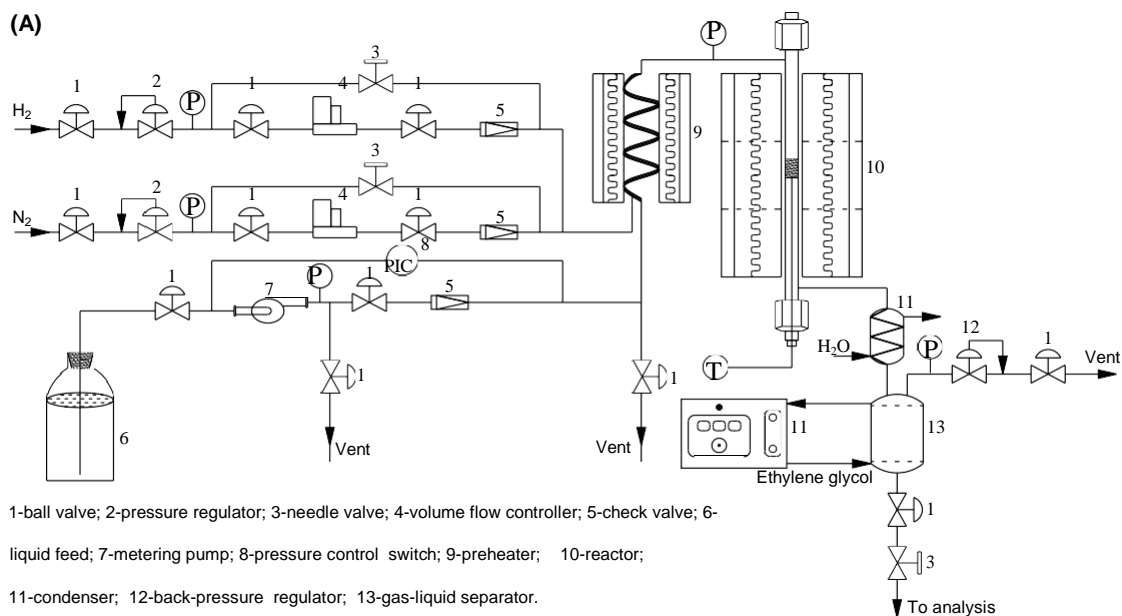
Fufeng Cai, Wei Zhu and Guomin Xiao\*

School of Chemistry and Chemical Engineering, Southeast University, Nanjing 211189,  
China

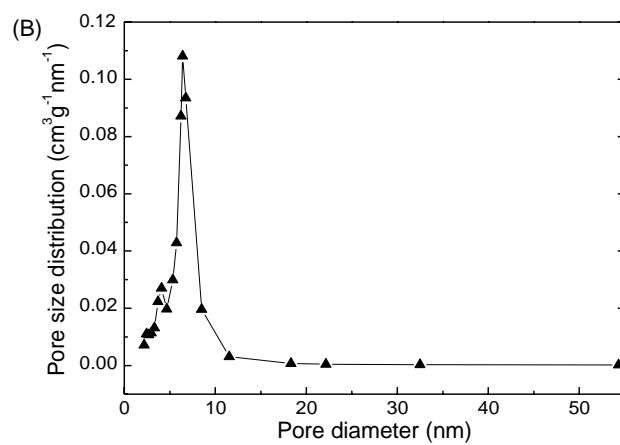
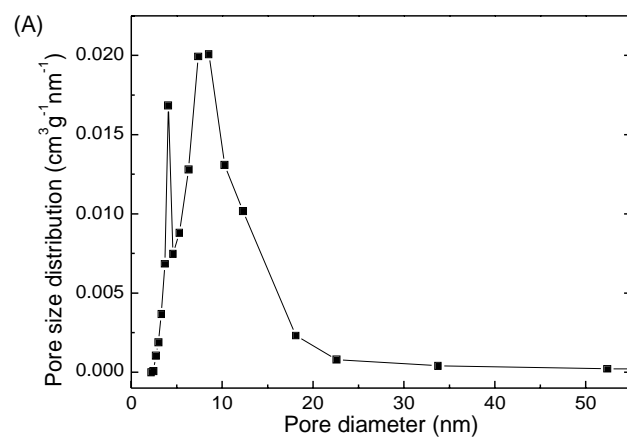
\*Corresponding author E-mail address: xiaogm@seu.edu.cn. Tel./Fax: +86 25 52090612.

This supplementary material includes:

- Figure S1. Schematic diagram of the experimental apparatus.
- Figure S2. Pore distribution profiles of the catalysts.
- Table S1. Binding energies and atomic ratios of reduced catalysts obtained from XPS analysis.



**Figure S1.** Schematic diagram (A), side view (B) and flow diagram (C) of the experimental apparatus.



**Figure S2.** Pore distribution profiles of the representative catalysts:  $\text{Cu-Al}_2\text{O}_3$  (A) and  $20\text{ZrCu-Al}_2\text{O}_3$  (B).

**Table S1.** Binding energies and atomic ratios of reduced catalysts obtained from XPS analysis.

Catalyst	Binding energy (eV)							Atomic ratio	
	Cu 2p <sub>3/2</sub>	Cu 2p <sub>1/2</sub>	Zr 3d <sub>5/2</sub>	Zr 3d <sub>3/2</sub>	Al 2p <sub>3/2</sub>	Al 2p <sub>1/2</sub>	O 1s	Cu/Al	Zr/Al
Cu-Al <sub>2</sub> O <sub>3</sub>	932.6	952.5	-	-	73.6	74.3	531.4, 533.2	0.104	-
5ZrCu-Al <sub>2</sub> O <sub>3</sub>	932.6	952.5	182.1	184.6	73.5	74.1	531.3, 533.1	0.113	0.023
10ZrCu-Al <sub>2</sub> O <sub>3</sub>	932.7	952.6	182.1	184.5	73.3	74.0	531.1, 533.1	0.121	0.040
20ZrCu-Al <sub>2</sub> O <sub>3</sub>	932.8	952.6	182.0	184.4	73.2	73.9	531.0, 533.0	0.134	0.074
30ZrCu-Al <sub>2</sub> O <sub>3</sub>	932.9	952.7	181.9	184.3	73.1	73.8	530.9, 532.9	0.129	0.111