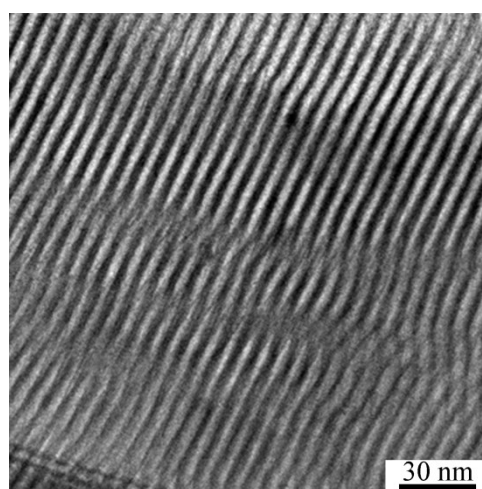


**CO<sub>x</sub>-free hydrogen production via ammonia decomposition over mesoporous Co/Al<sub>2</sub>O<sub>3</sub> catalysts with highly dispersed Co species synthesized by a facile method**

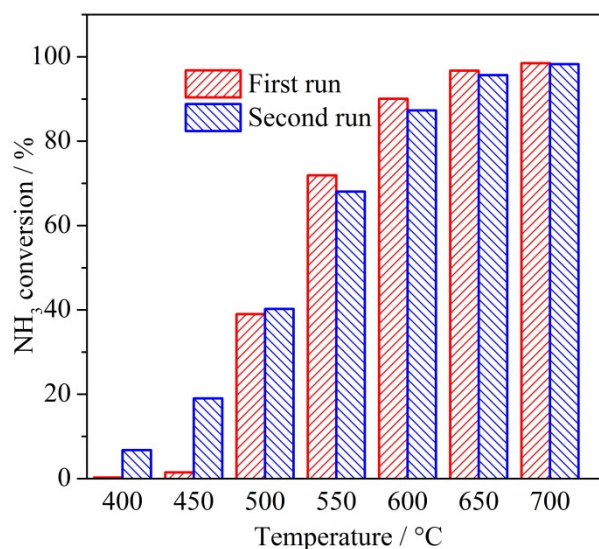
Yingqiu Gu, Di Xu, Yun Huang, Zhouyang Long\*, Guojian Chen\*

*School of Chemistry & Materials Science, Jiangsu Normal University, Xuzhou, Jiangsu*

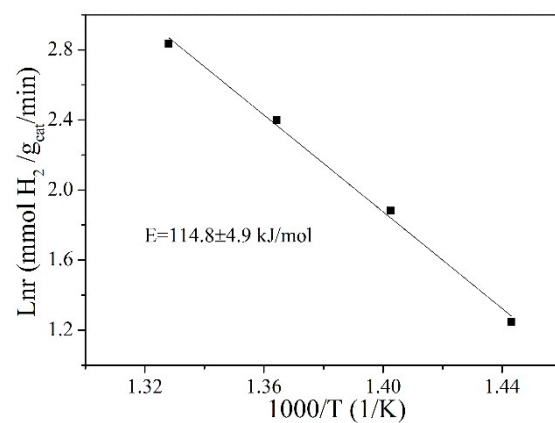
*221116, China*



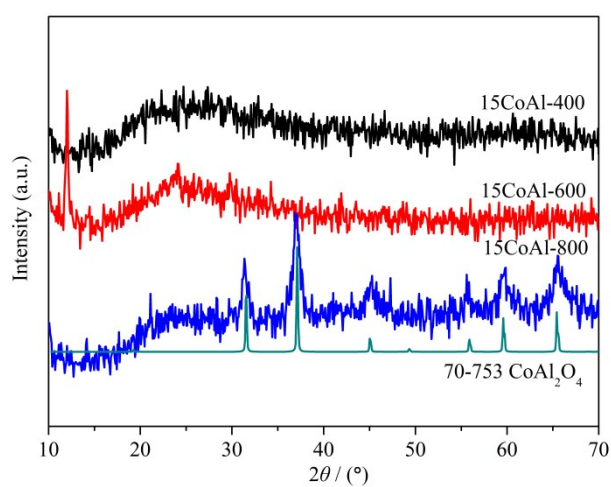
**Figure S 1.** TEM image of pure mesoporous Al<sub>2</sub>O<sub>3</sub>.



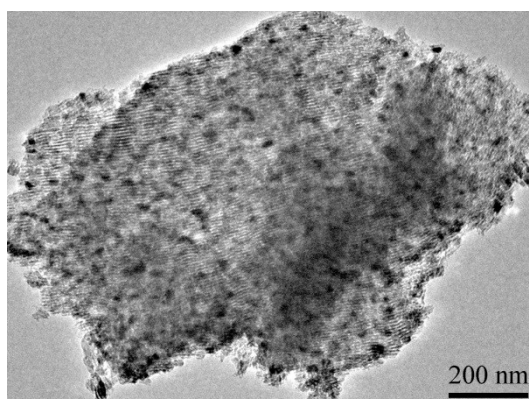
**Figure S 2.** Temperature dependent NH<sub>3</sub> conversion in the first and second run at a GHSV of 24,000 cm<sup>3</sup>g<sub>cat</sub><sup>-1</sup>h<sup>-1</sup> over 20CoAl catalyst.



**Figure S 3.** Arrhenius plots for 15CoAl in the range 420–480 °C.



**Figure S 4.** Wide-angle XRD patterns of 15CoAl samples calcinated at different temperature.



**Figure S 5.** TEM images of the 15CoAl sample calcinated at 800 °C.