Electronic supplementary information for

Confined synthesis of ultrafine Ru-B amorphous alloy and its catalytic behavior toward selective hydrogenation of benzene

Jie Liu, Shan He,* Changming Li, Fei Wang, Min Wei,* David G. Evans and Xue Duan

State Key Laboratory of Chemical Resource Engineering, Beijing University of Chemical Technology, Beijing 100029, P. R. China

* Corresponding authors. Tel: +86-10-64412131; Fax: +86-10-64425385.

E-mail addresses: vh30@163.com (S. He); weimin@mail.buct.edu.cn (M. Wei)

Figure S1. (a, b) TEM images of RuB/TNT-IMP at low and high magnification, (c) TEM image of RuB/TNS-IMP, (d, e) HRTEM and SEAD image for a single Ru-B NP, (f) EDS results of Ru-B particles.
**Figure S2.** H₂-TPD profiles of (a) Ru-B/TNT-IMP, (b) Ru-B/TNS-IMP, (c) Ru-B/TNT, (d) Ru-B/TNS.

**Figure S3.** TEM image of Ru-B catalyst prepared by the confined synthesis method in which RuCl₃·3H₂O water solution was used.
Figure S4. Benzene conversion as a function of reaction time over Ru-B/TNT catalyst (a) and Ru-B/TNS catalyst (b). The slope of the conversion-time plot at the half conversion of benzene was used to indicate the reaction rate over different catalysts.