

## Supporting Information

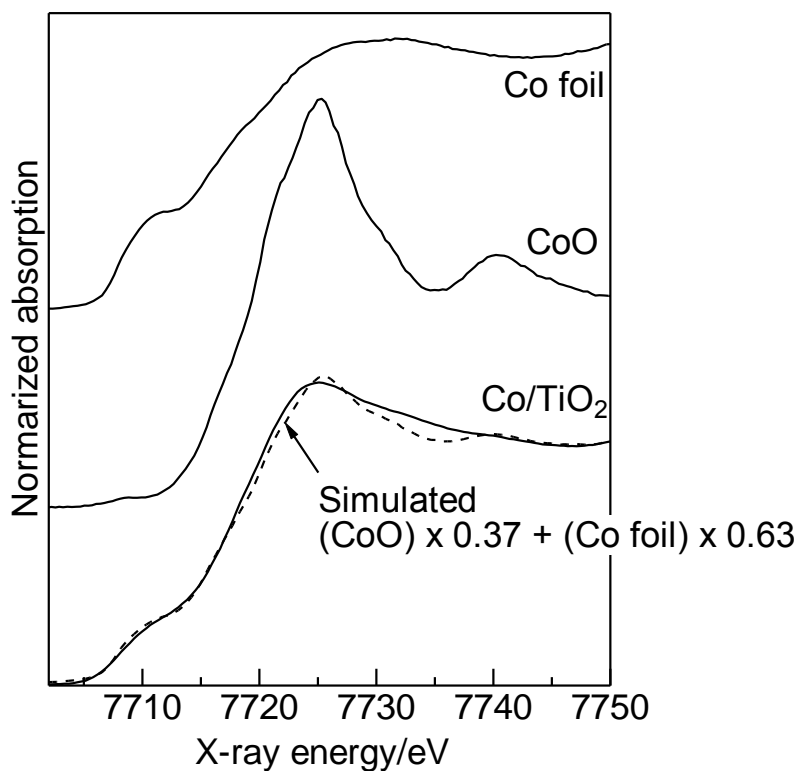
### Heterogeneous cobalt catalyst for acceptorless dehydrogenation of alcohols

Ken-ichi Shimizu,<sup>\*a</sup> Kenichi Kon, Mayumi Seto, Katsuya Shimura,<sup>a</sup> Hiroshi Yamazaki,<sup>b</sup> and Junko N. Kondo<sup>b</sup>

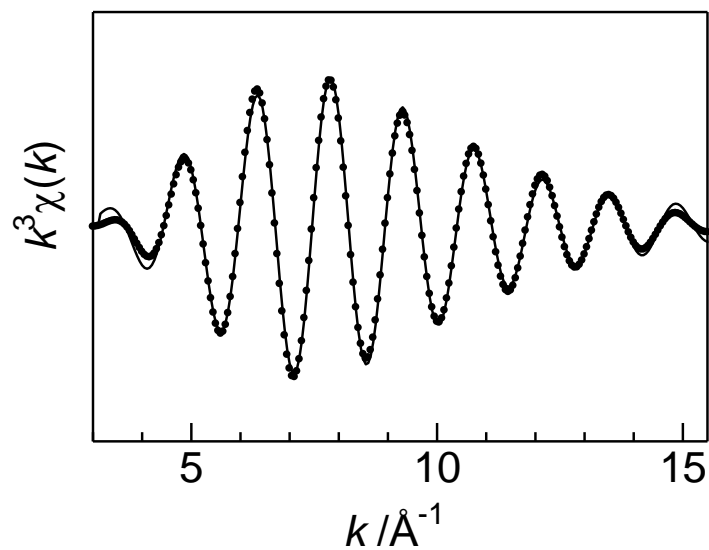
<sup>a</sup> Catalysis Research Center, Hokkaido University, N-21, W-10, Sapporo 001-0021, Japan

<sup>b</sup> Chemical Resources Laboratory, Tokyo Institute of Technology, 4259 Nagatsuta, Midori-ku, Yokohama, 226-8503, Japan

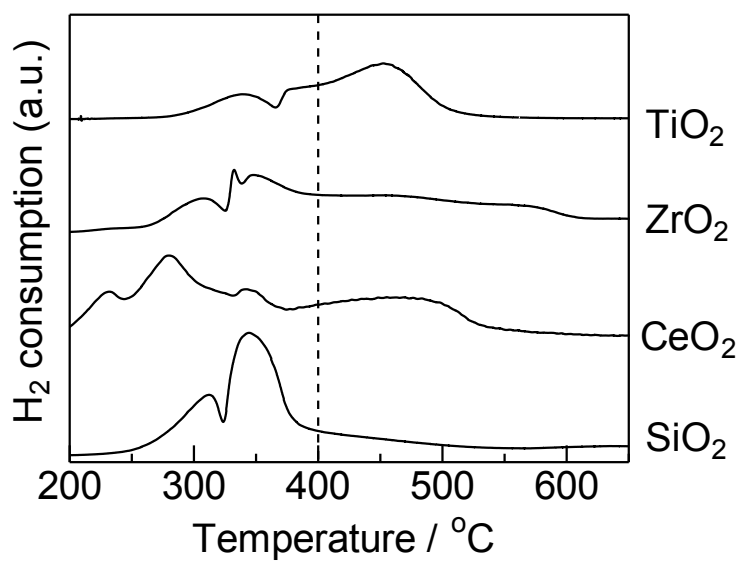
\*Corresponding author: e-mail: [kshimizu@cat.hokudai.ac.jp](mailto:kshimizu@cat.hokudai.ac.jp), Fax: +81-11-706-9163



**Figure S1.** Fitting analysis of Co K-edge XANES. The experimental spectrum of Co/TiO<sub>2</sub> (Co = 5 wt%, after H<sub>2</sub>-reduction at 400 °C) fitted with the simulated spectrum (dashed line) which is composed of XANES spectra of reference compounds (Co foil and CoO).



**Figure S2.** Fourier filtered EXAFS function ( $R$  range = 1.32–2.88 Å) (solid line) and (•) its best fit derived from curve-fitting analysis of Co/TiO<sub>2</sub> (Co = 5 wt%, after H<sub>2</sub>-reduction at 400 °C).



**Figure S3.** H<sub>2</sub>-TPR profiles of Co<sub>3</sub>O<sub>4</sub>-loaded metal oxides (Co = 5 wt%).