Electronic Supplementary Information for:

**Improvement of hydrogen evolution under visible light over Zn$_{1-2x}$(CuGa)$_x$Ga$_2$S$_4$ photocatalysts by synthesis utilizing a polymerizable complex method**

Ciro Scheremeta Quintans,$^a$ Hideki Kato,*$^a$ Makoto Kobayashi,$^a$ Hiroshi Kaga,$^b$ Akihide Iwase,$^{b,c}$ Akihiko Kudo$^{b,c}$ and Masato Kikihana$^a$

$^a$ Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, 2-1-1 Katahira, Aoba-ku, Sendai, Miyagi 980-8577, Japan.

$^b$ Department of Applied Chemistry, Faculty of Science, Tokyo University of Science, 1-3 Kagurazaka, Shinjuku-ku, Tokyo 162-8601, Japan

$^c$ Photocatalysis International Research Center, Research Institute for Science and Technology, Tokyo University of Science, Japan

* E-mail: hkato@tagen.tohoku.ac.jp (H. Kato)
**Fig. S1** XPS of Cu 2p for Zn_{0.4}(CuGa)_{0.3}Ga_{2}S_{4} prepared by sulfurization of an oxide precursor prepared by the PC method.

**Fig. S2** UV-vis spectra of Zn_{0.4}(CuGa)_{0.3}Ga_{2}S_{4} synthesized by PC and SSR methods.

**Fig. S3** (left) Nitrogen adsorption-desorption isotherms and (right) pore size distribution for Zn_{1-x}(CuGa)_{x}Ga_{2}S_{4}.