## Supporting Information

# Construction of $CuInS_2$/Ag sensitized ZnO nanowire arrays for efficient hydrogen generation

Zhongzhou Cheng,[ab‡] Xueying Zhan,[a‡] Fengmei Wang,[a] Qisheng Wang,[a] Kai Xu,[a] Quanlin Liu,[b] Chao Jiang,[a] Zhenxing Wang*[a] and Jun He*[a]

[a]*CAS Key Laboratory of Nanosystem and Hierarchical Fabrication, National Center for Nanoscience and Technology, Beijing 100190, ChinaE-mail: wangzx@nanoctr.cn, hej@nanoctr.cn.*
[b]*School of Materials Science and Engineering, University of Science and Technology Beijing, Beijing 100083, China*

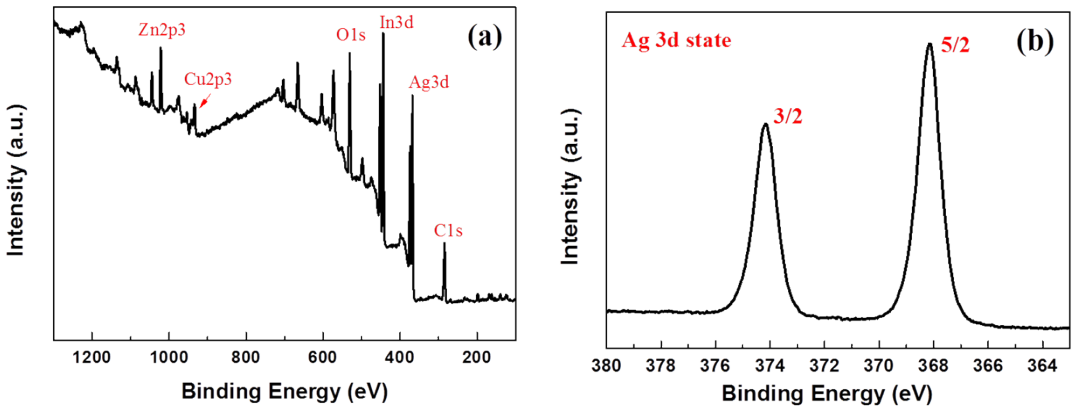


**Fig.S1** XPS spectra of the ZnO-Ag-CIS sample (a) the survey and (b) Ag 3d.

XPS has been conducted to check the surface composition of the ZnO-Ag-CIS sample and the chemical state of Ag. The spectra revealed that the elements on the surfaces are composed primarily of C (284.7 eV), Ag (368.16 eV and 374.16 eV), In (444.6 eV), O (531.5 eV), Cu (932.7 eV) and Zn (1021.2 eV), as showed in Fig. S1(a). The high-resolution scanning XPS spectra of Ag 3d state contained two peaks at 368.16 eV and 374.16 eV (Fig. S1(b)), which means the existence of Ag(0). However, there is no significant surface plasmon response signal around 400–600 nm (Fig. 4c). This may be due to the fact that the Ag NPs were wrapped in the CIS shell. Thus, the increased photo current and hydrogen production efficiency were attributed to the improved transport of photogenerated electrons between the surface of CIS and ZnO by Ag NPs.