Supporting Information

Controllable Synthesis of Three Dimensional Electrodeposited Co-P Nanospheres Arrays as Efficient Electrocatalyst for Overall Water Splitting

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The electrodeposition curve of Co-P is exhibited in Fig. S1. The electrodeposition electrolyte is composed of 50 mM CoCl$_2$·6H$_2$O, 0.5 M NaH$_2$PO$_4$·H$_2$O and 0.1 M NaOAc. A CV technique was applied, with the potential region from -0.3 V to -1.0 V vs. Ag/AgCl. CV cycles are 15 and the scan rate is 30 mV s$^{-1}$. The electrodeposition mechanism of the Co-P film is as follows: H$_2$PO$_2^-$ + Co$^{2+}$ + 3 e$^-$ = Co-P + 2 OH$^-$. And the photograph of the obtained Co-P film is shown in Fig. S2. The left sample is the electrodeposited Co-P/FTO and the right is the blank FTO. It can be clearly seen that after electrodeposition, black coverage Co-P film was grown on the transparent FTO.
Fig. S1. Cyclic voltammograms during the deposition of the Co-P film using the potential cycling method.
Fig. S2. Photographs of the Co-P/FTO (left) and blank FTO (right)