Supporting Information

$Na_2V_6O_{16}•xH_2O$ Nanoribbons: Large-Scale Synthesis and Visible-light Photocatalytic Activity of CO_2 into Solar Fuels

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Loading the Co-catalysts: The loading of Pt was performed by a photocatalytic reduction method. $H_2PtC_{l6}\cdot 6H_2O$ was used for the source of Pt. Typically, 0.2 g photocatalyst, 40 mL distilled water, 15 mL CH_3OH and a given amount of $H_2PtC_{l6}\cdot 6H_2O$ were placed in a glass vessel. The reactant solution was irradiated by a 300W Xe arclamp for 8 h with stirring. Then, the photocatalyst with co-catalysts was filtered, washed thoroughly with deionized water and alcohol, dried at 60 °C for 12h. The loading of RuO_2 was performed by impregnating photocatalyst powders with the solution of ruthenium complex, $Ru_3(CO)_{12}$ (Aldrich Chemical Co., 99% pure) in tetrahydrofuran (THF). The impregnated samples were stirred for 4 h, dried at 60℃ and oxidized at 350℃ in air for 1 h to convert ruthenium complex species to ruthenium oxide. For the co-loading of Pt and RuO_2 on $Na_2V_6O_{16}$, the loading of RuO_2 was performed firstly and then Pt was loaded according to above methods.

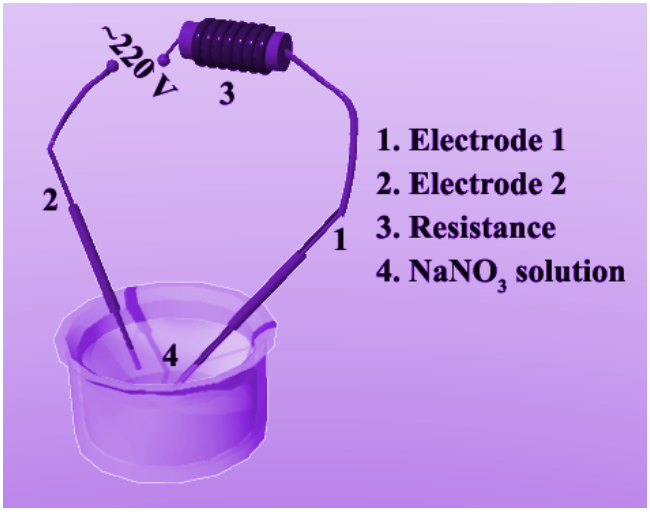

Figure SI1 Schematic setup of the SLPAD route.

Figure SI2 V precursor solution obtained through SLPAD route

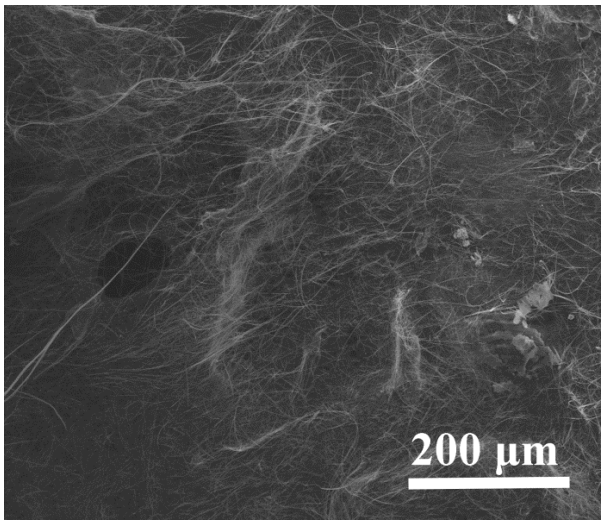

Figure SI3 SEM images of $Na_2V_6O_{16}$•xH_2O nanoribbons.

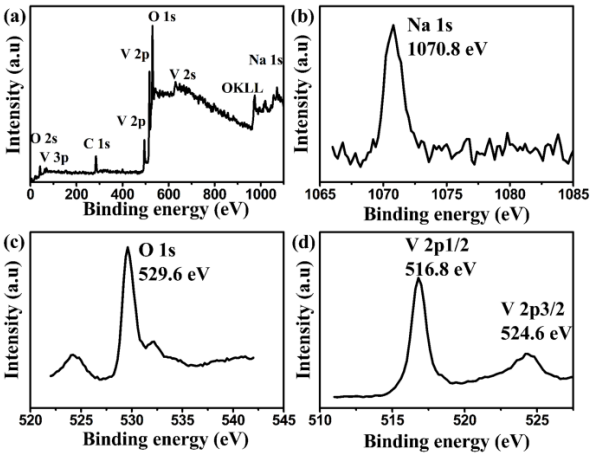

Figure SI4 XPS spectrum of the $Na_2V_6O_{16}$•xH_2O nanoribbons (a) survey spectrum, (b) Na 1s peak, (c) O 1s peak, (d) V 2p peak

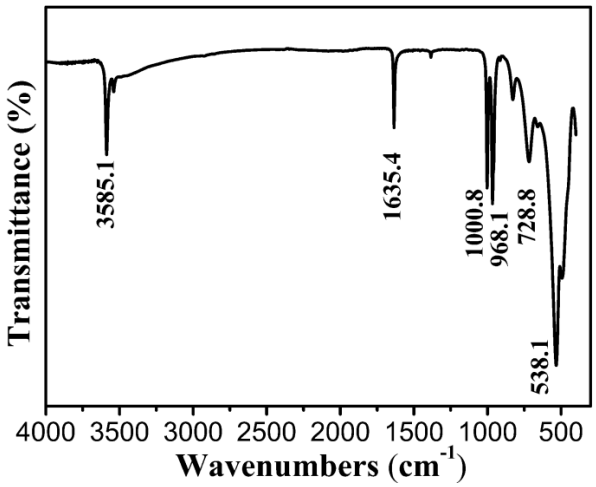

Figure SI5 FTIRspectra of $Na_2V_6O_{16}$•xH_2O nanoribbons.

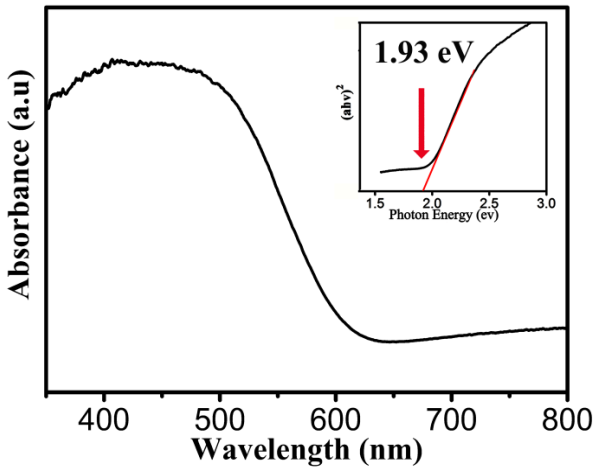

Figure SI6 UV-vis spectrum of the $Na_2V_6O_{16}$•xH_2O nanoribbons. Top insert: the UV-vis Spectrum obtained by using the energy as abscissa.

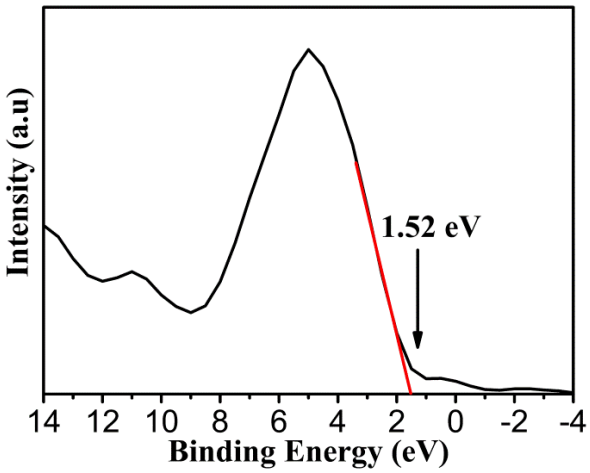

Figure SI7 Valence band XPS spectra of the $Na_2V_6O_{16}$•xH_2O nanoribbons.

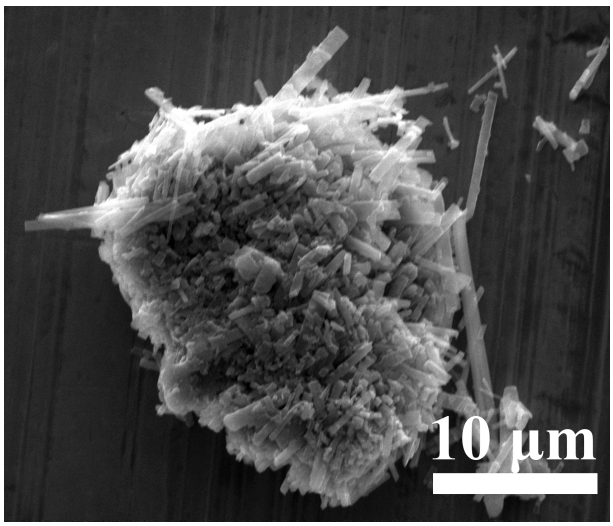

Figure SI8 SEM images of bulk sample

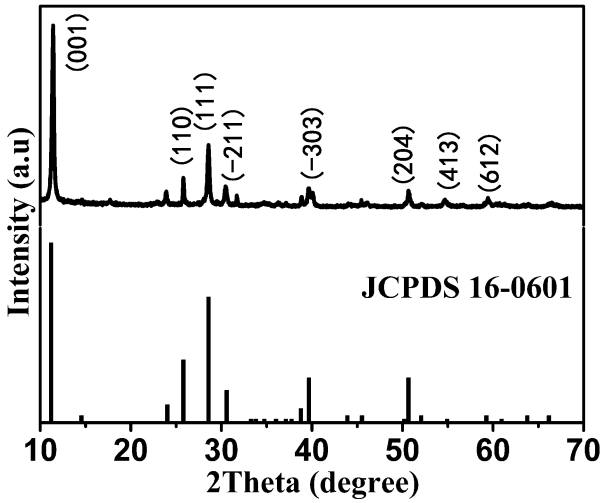

Figure SI9 XRD spectrum of bulk sample