Electronic Supplementary Material (ESI) for Green Chemistry
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Photocatalytic hydrogen production on nickel-loaded $La_xNa_{1-x}TaO_3$ prepared by hydrogen peroxide-water based green process

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Supporting Information

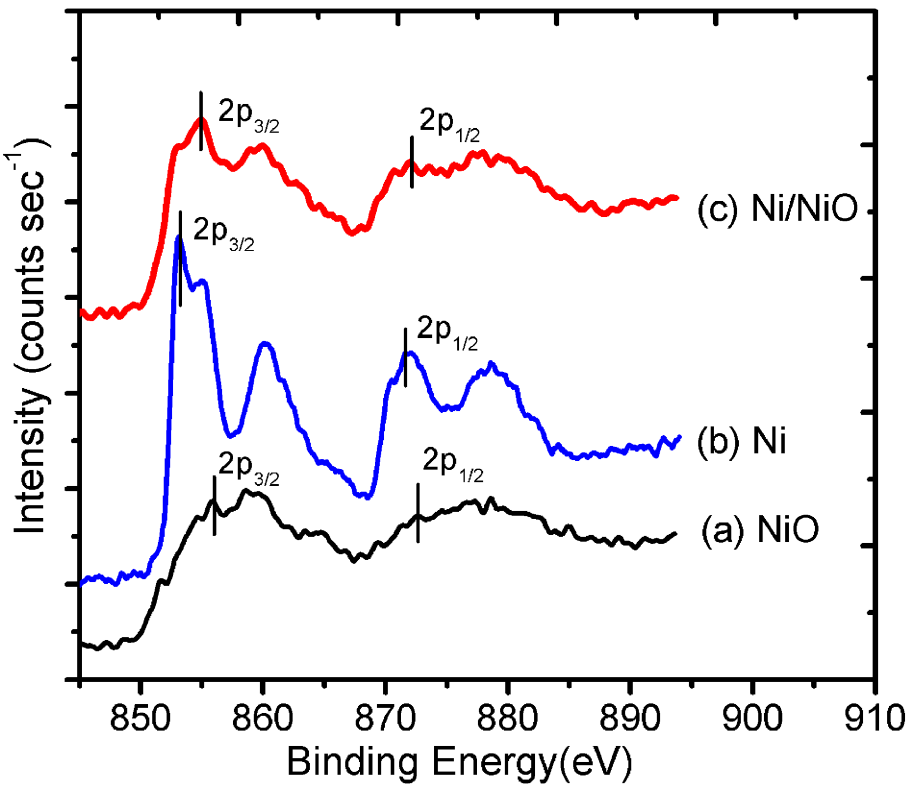

Fig. S1. Ni 2p XPS spectra of nickel/$La_{0.02}Na_{0.98}TaO_3$ (a) NiO-loaded $La_{0.02}Na_{0.98}TaO_3$; (b) Ni-loaded $La_{0.02}Na_{0.98}TaO_3$; (c) Ni/NiO-loaded $La_{0.02}Na_{0.98}TaO_3$.

The XPS spectra of nickel/$La_{0.02}Na_{0.98}TaO_3$ shown in Fig. S1 also reveal the chemical states of nickel on the surface $La_{0.02}Na_{0.98}TaO_3$. The binding energy peaks for as-prepared NiO/$La_{0.02}Na_{0.98}TaO_3$ after calcination at 300 ^oC in air in Fig. S1(a) at 855.8 and 873.6 eV correspond to NiO 2p3/2 and 2p1/2, respectively. When NiO/$La_{0.02}Na_{0.98}TaO_3$ was reduced with hydrogen at 500 ^oC, the NiO 2p3/2 peak at 855.8 eV shifted to 852.9 eV corresponding to

metallic nickel 2p3/2, as indicated in Fig. S1(bAfter further mild oxidation at 200 °C, the Ni 2p3/2 peak shifted back to 854.6 eV (NiO 2p3/2), as shown in Fig. S1(c).[1-3] The binding energy value is attributed to a combination of NiO and Ni, indicating that a thin layer of NiO covers the metal Ni core of particles also shown in Fig. S1(c).

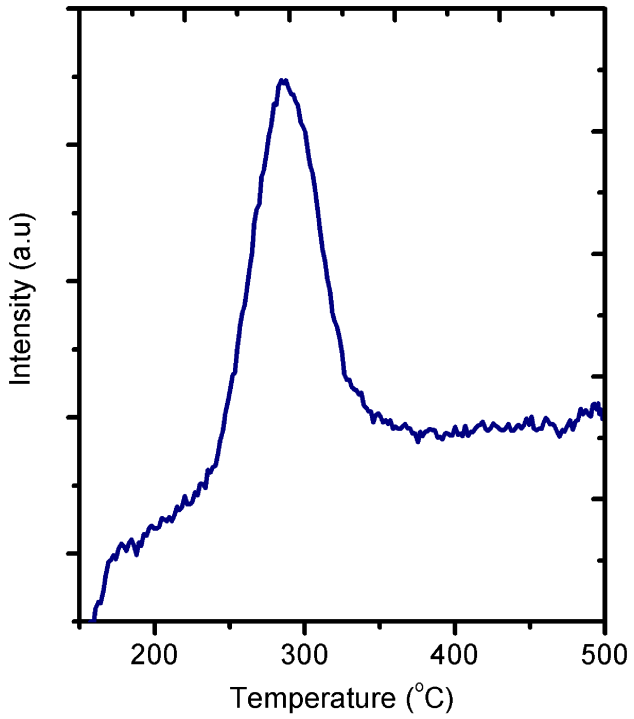

Fig. S2 TPR measurement of nickel

References

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