

Low-temperature synthesis of NaRE(WO₄)₂ films via sacrificial conversion from the layered rare-earth hydroxides, phase/morphology evolution, and photoluminescence

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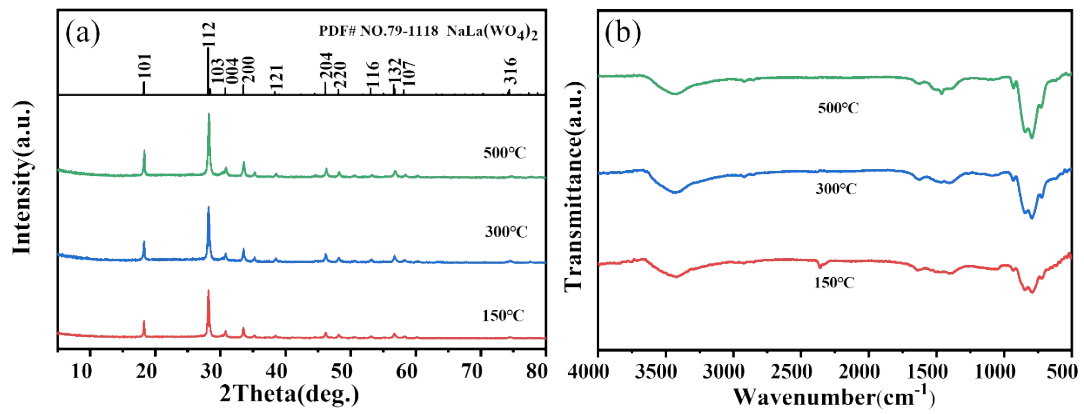


Fig. S1 XRD patterns (a) and FT-IR spectra (b) of NaLa(WO₄)₂ films obtained via further heat treatment at 150 °C, 300 °C, and 500 °C.

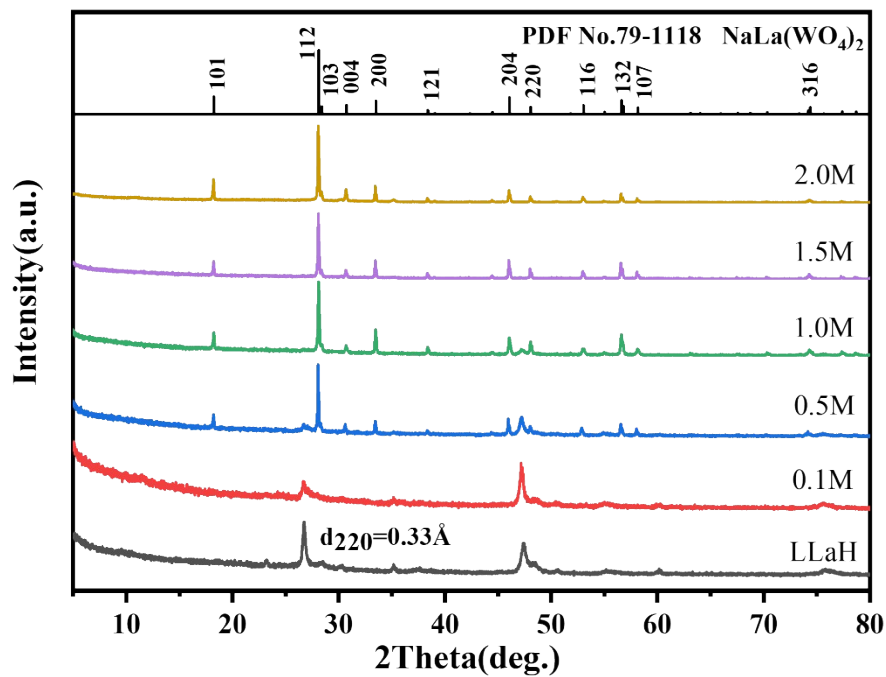


Fig. S2 XRD patterns of anion exchanged films prepared with different concentration of Na₂WO₄ solutions at 100 °C.

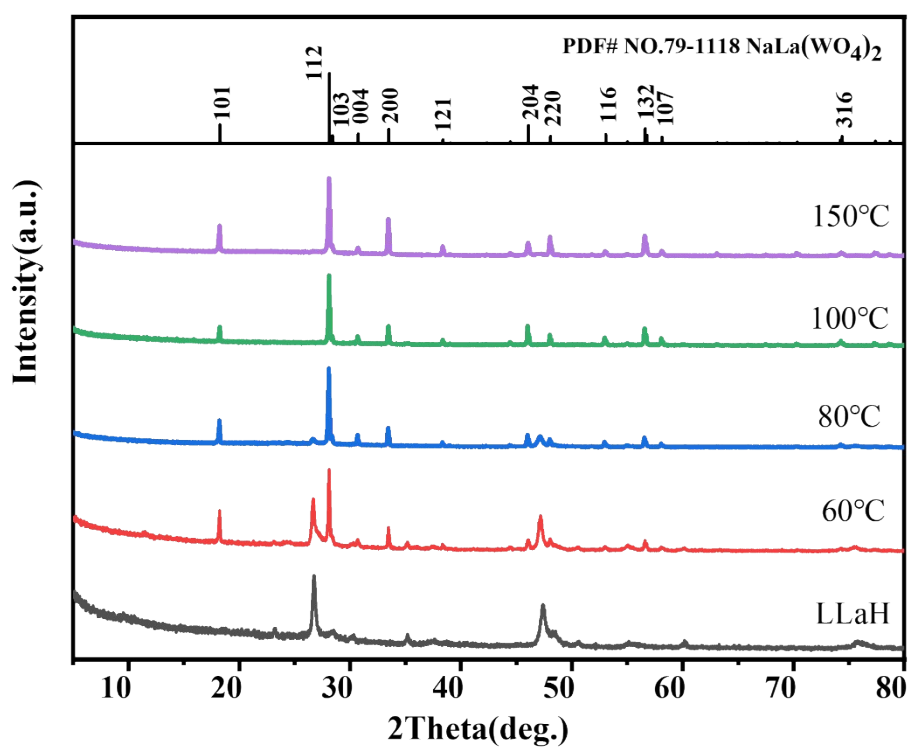


Fig. S3 XRD patterns of anion exchanged films synthesized prepared with 1.5M Na_2WO_4 solutions at different temperatures.

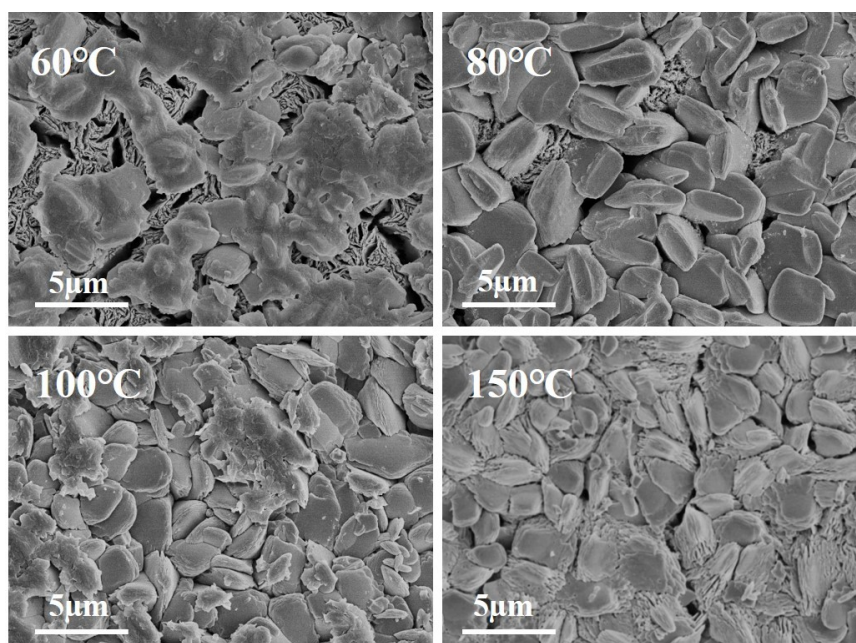


Fig. S4 SEM morphologies of anion exchanged films synthesized prepared with 1.5M Na_2WO_4 solutions at different temperatures.

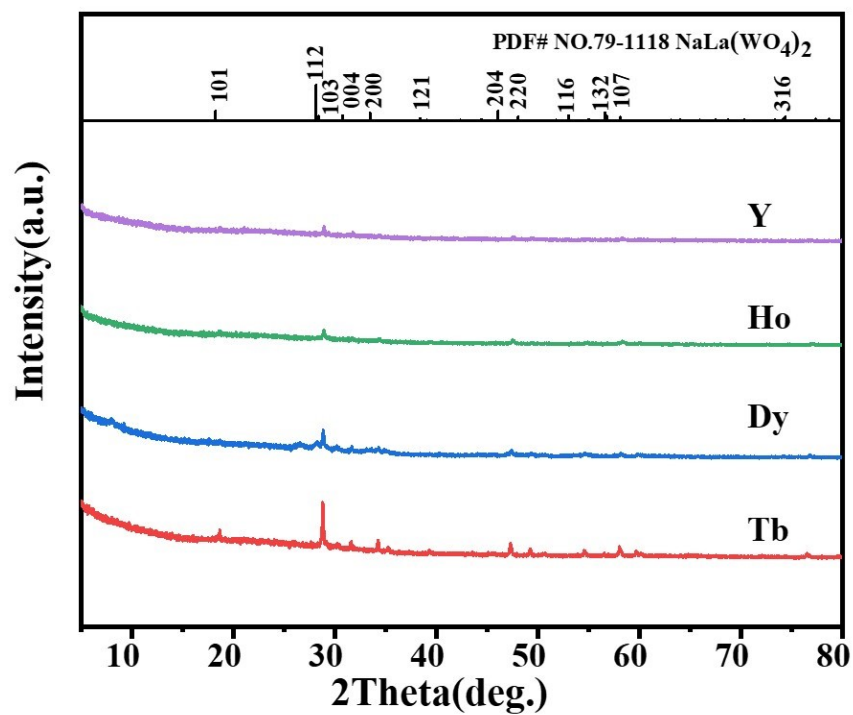


Fig. S5 XRD patterns of the $\text{NaRE}(\text{WO}_4)_2$ (RE=Tb, Dy, Ho and Y) films prepared with 2M Na_2WO_4 solution at 100 °C for 6h.

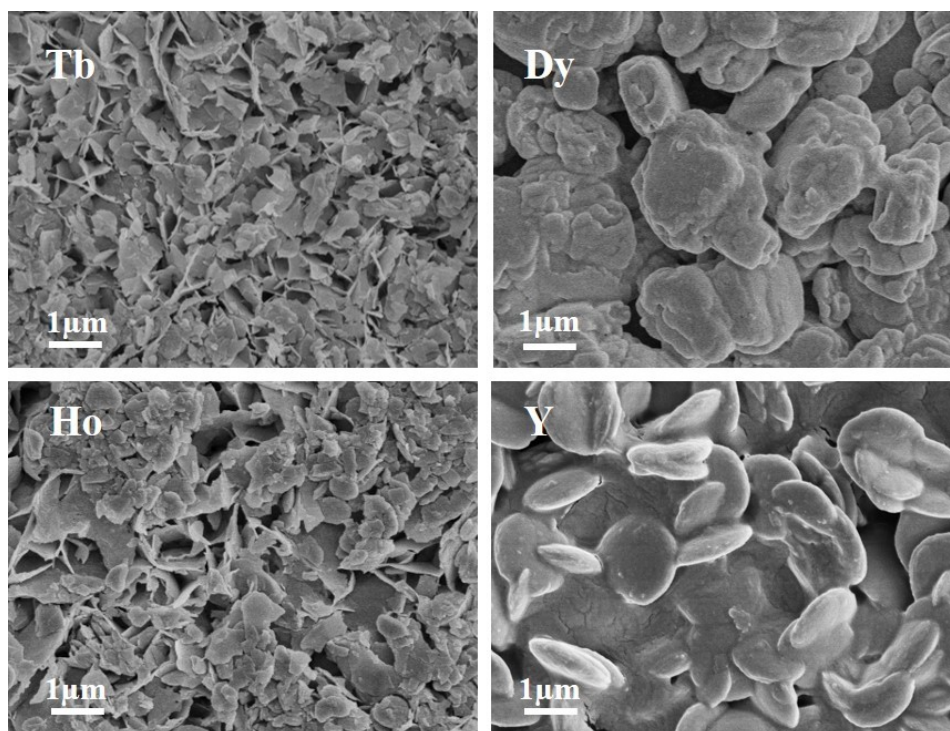


Fig. S6 FE-SEM images of the $\text{NaRE}(\text{WO}_4)_2$ (RE=Tb, Dy, Ho and Y) films prepared with 2M Na_2WO_4 solution at 100 °C for 6h.