## **Electronic supplementary information**

## Photoluminescence and structural phase transition relationship in Er-doped BaTiO<sub>3</sub> model ferroelectric system

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**Figure S1**: PL spectrum of Er-BTO in the visible 500-700 nm range showing green bands are much stronger than the red ones located around 650 nm.



**Figure S2**: Temperature dependent XRD patterns around the {200}, {110}, {111} diffraction peaks (around 2theta=45°, 31.5° and 39°, respectively) of Er-BTO.