Supplementary Information

Local Structural Distortions and Thermochromic Properties in $Cs_2NaFeCl_6$ Halide Double Perovskite

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S1: Shifting of (220) peak position in temperature dependent XRD spectra

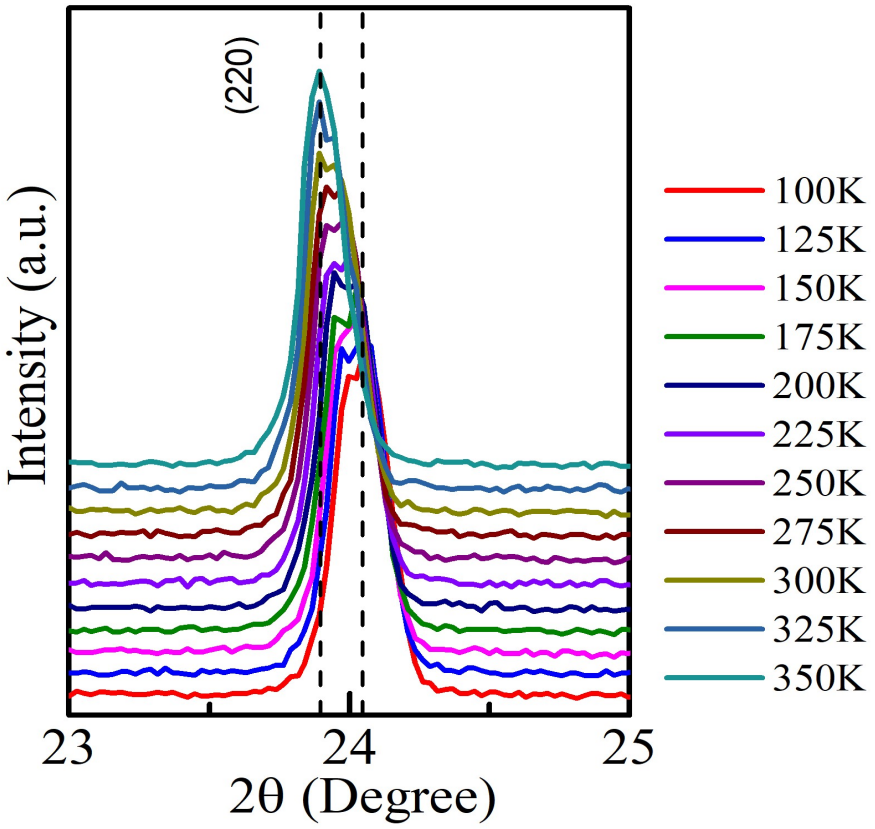

Fig. S1. Shifting of (220) peak with temperature starting from 100K to 350K. The apparent peak-splitting seen here is an artifact from the Kα1 and Kα2 X-ray wavelengths of Cu source, used for recording the XRD profile.

S2: Room temperature Raman spectra with various thermal cycles

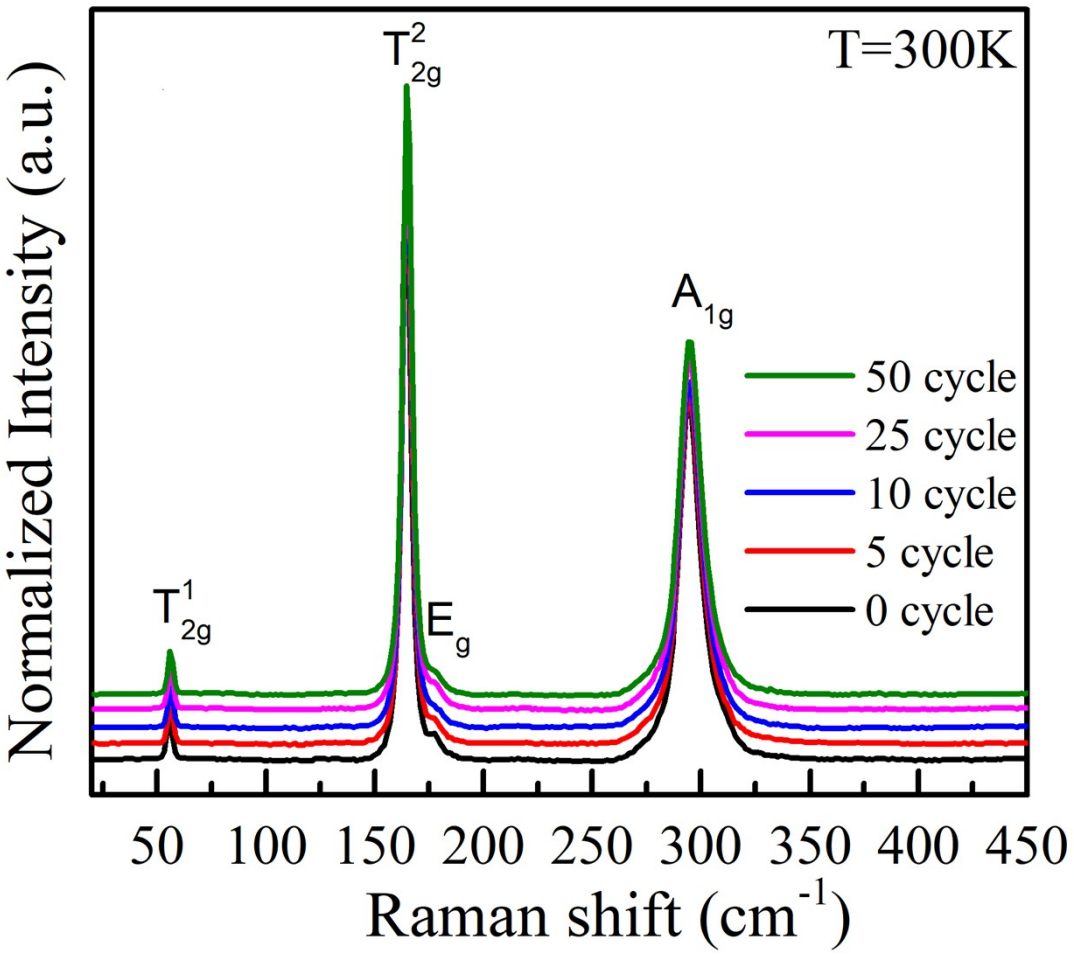

Fig. S2. Room temperature Raman spectra show no change in the Raman peak positions after several thermal cycles.

S3: Room temperature diffuse reflectance spectra with various thermal cycles

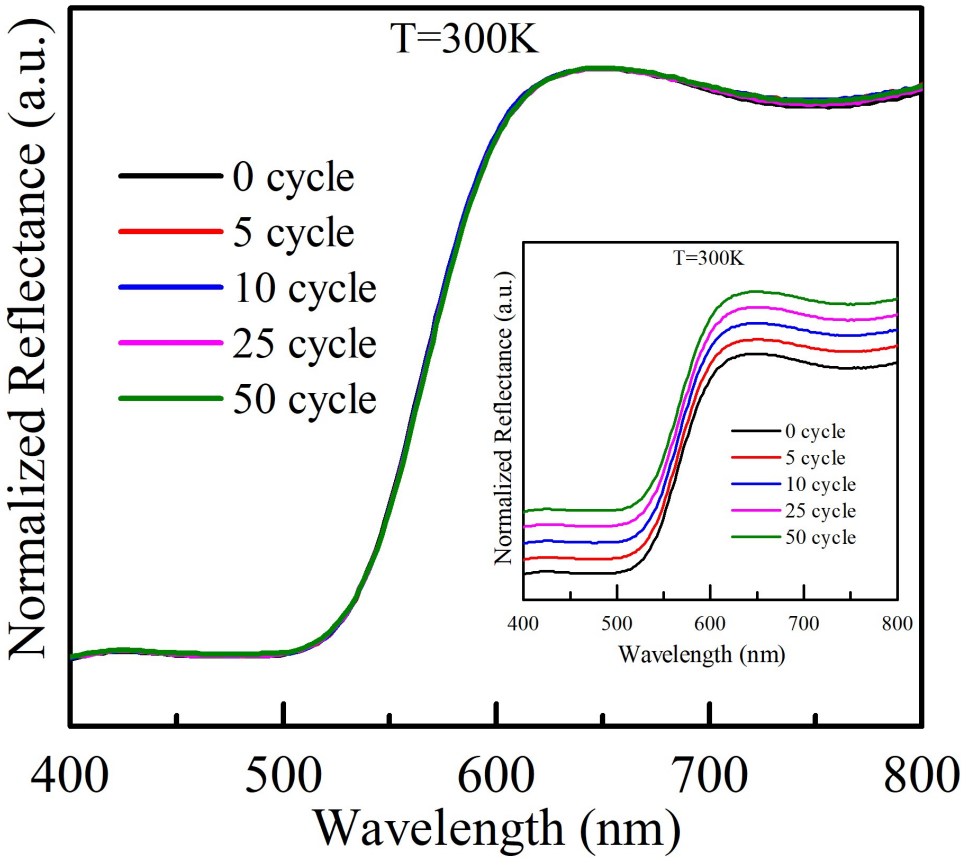

Fig. S3. Room temperature UV-vis diffuse reflectance spectra with different thermal cycles depicts that the reflectance spectra remain unchanged. For clarity, the spectra are re-plotted in the inset with a constant upward shift in the y-axis of each spectra.