

Supporting Information

Structural and Photophysical Properties of Methylammonium Lead Tribromide (MAPbBr₃) Single Crystals

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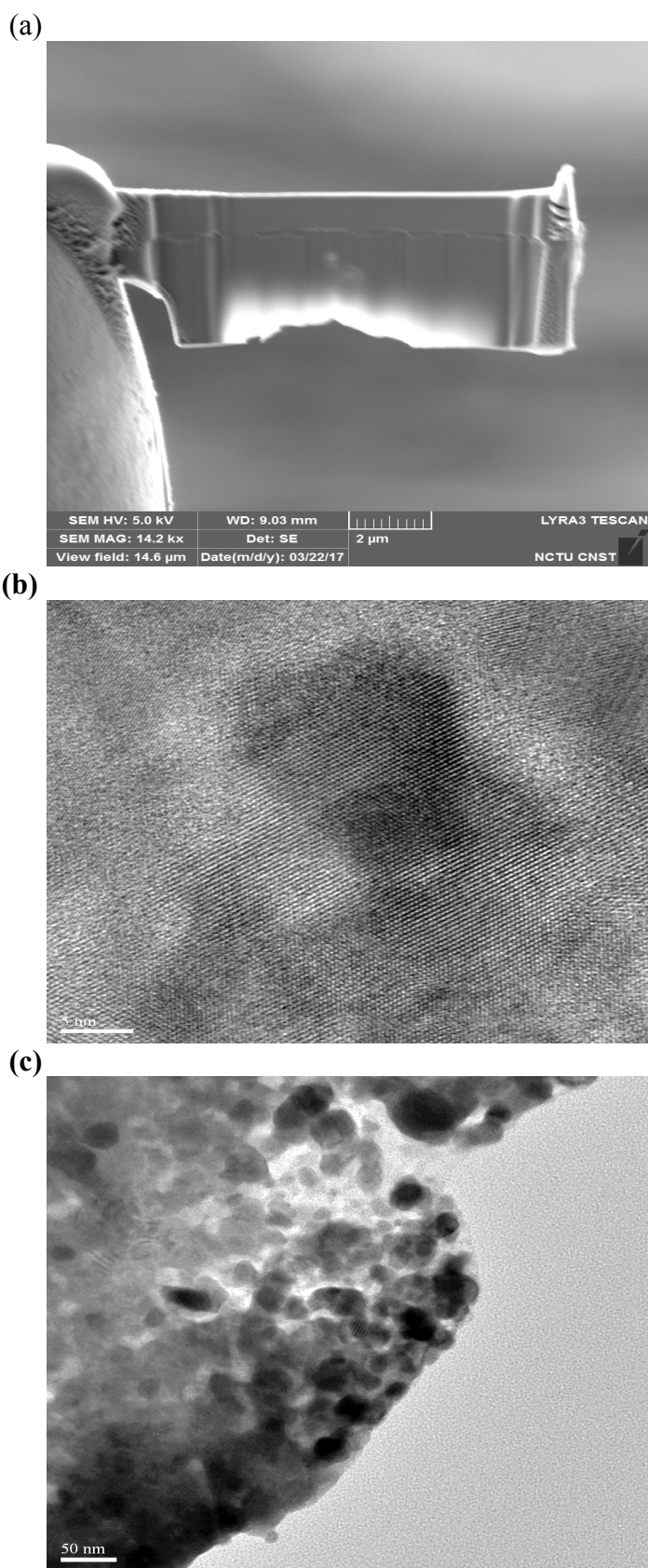


Figure S1. (a) SEM image of a thin slice cut from MAPbBr₃ single crystals using focus ion beam (b) TEM image of of MAPbBr₃ single crystal (c) TEM image of MAPbBr₃ single crystal powder. Amorphization or liquidation of the samples immediately occurred during the observation.

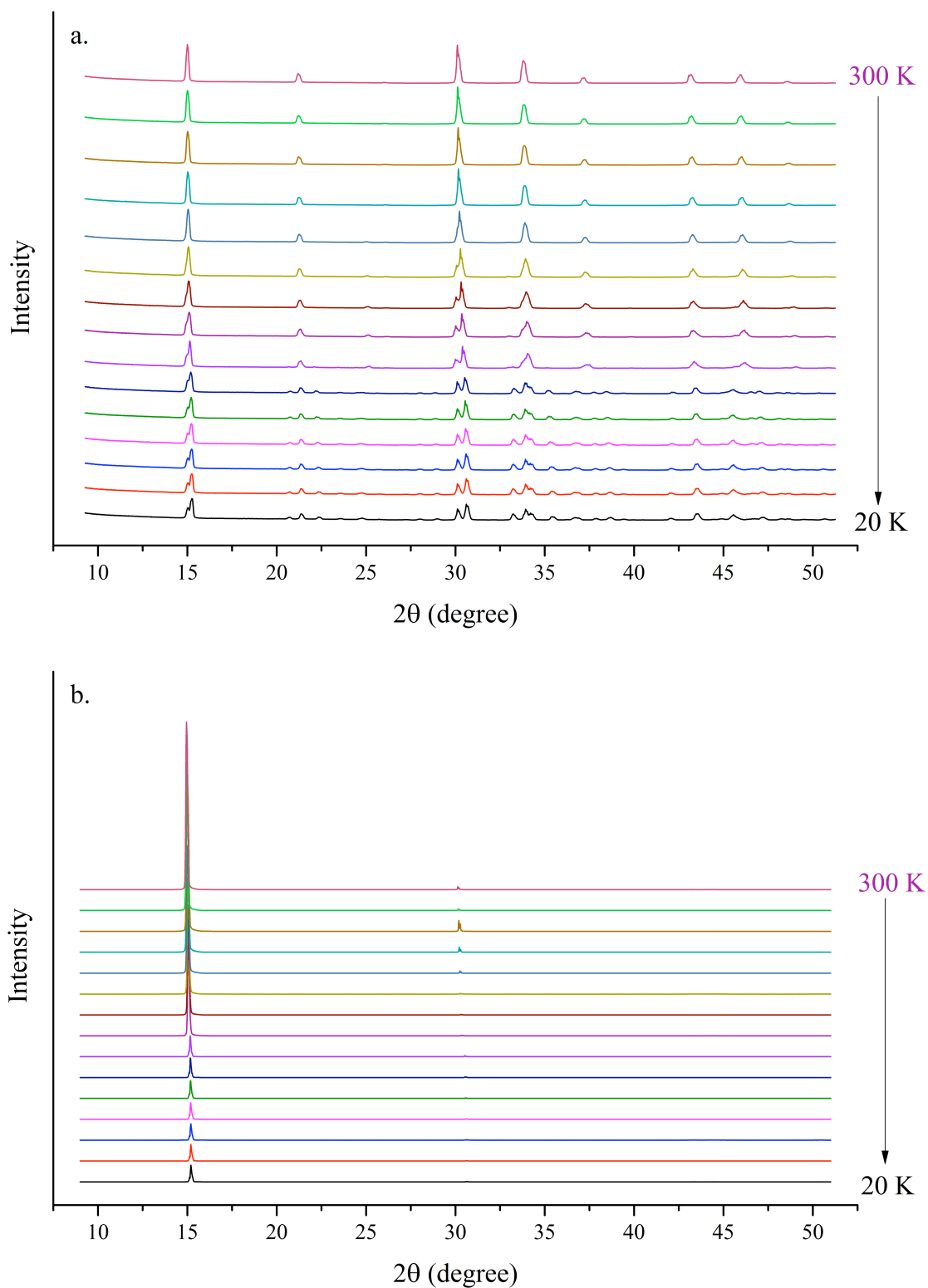


Figure S2. (a) The powder and (b) single-crystal XRD patterns of MAPbBr₃ single crystals measured at 300 - 20 K. The doublet structure in the (200) peak is due to the slight difference in the diffraction angle between the K α 1 and K α 2 lines.

Temperature Dependent

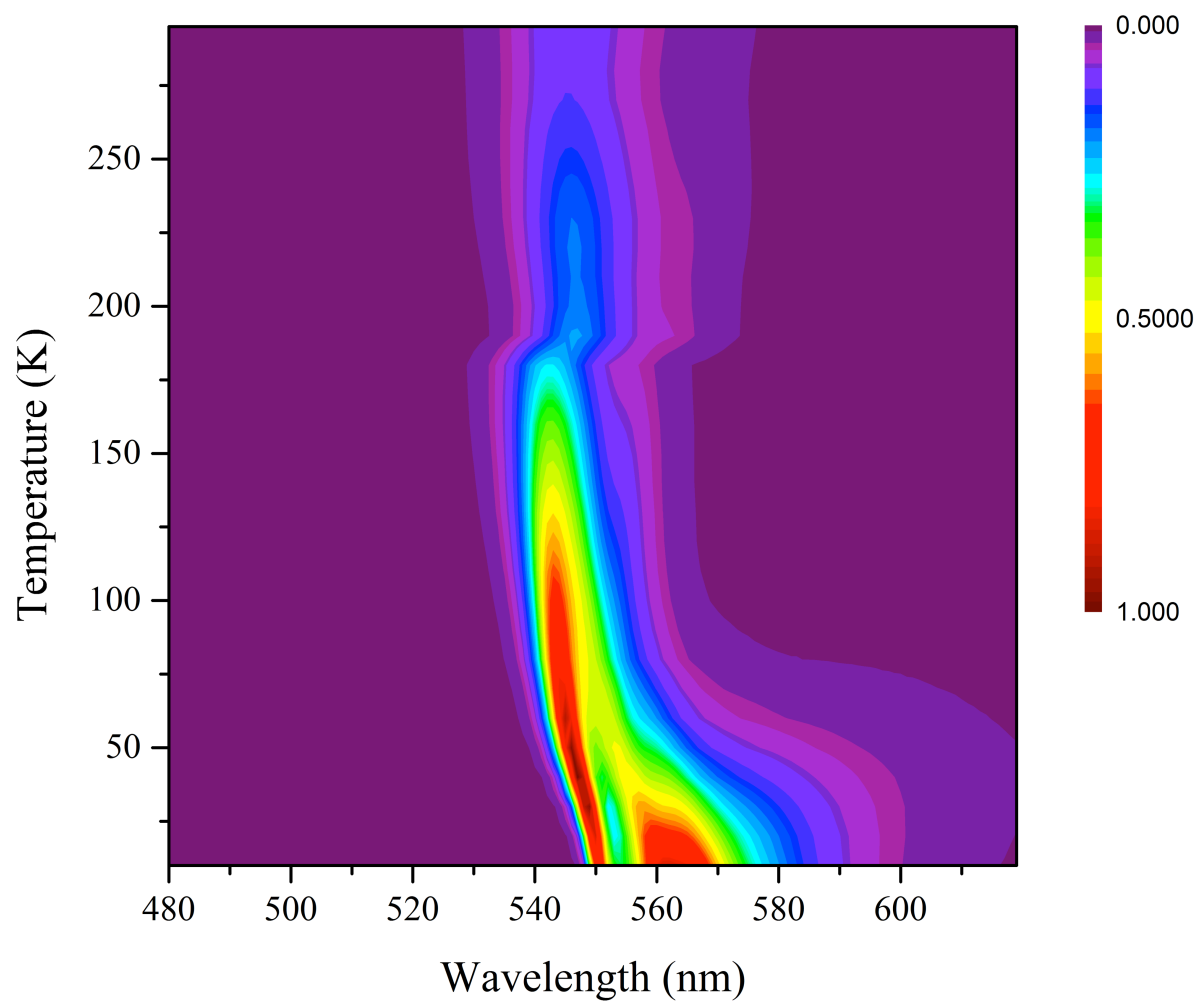


Figure S3. Contour mapping of the the PL spectra of MAPbBr₃ single crystals measured at 300 - 20 K.

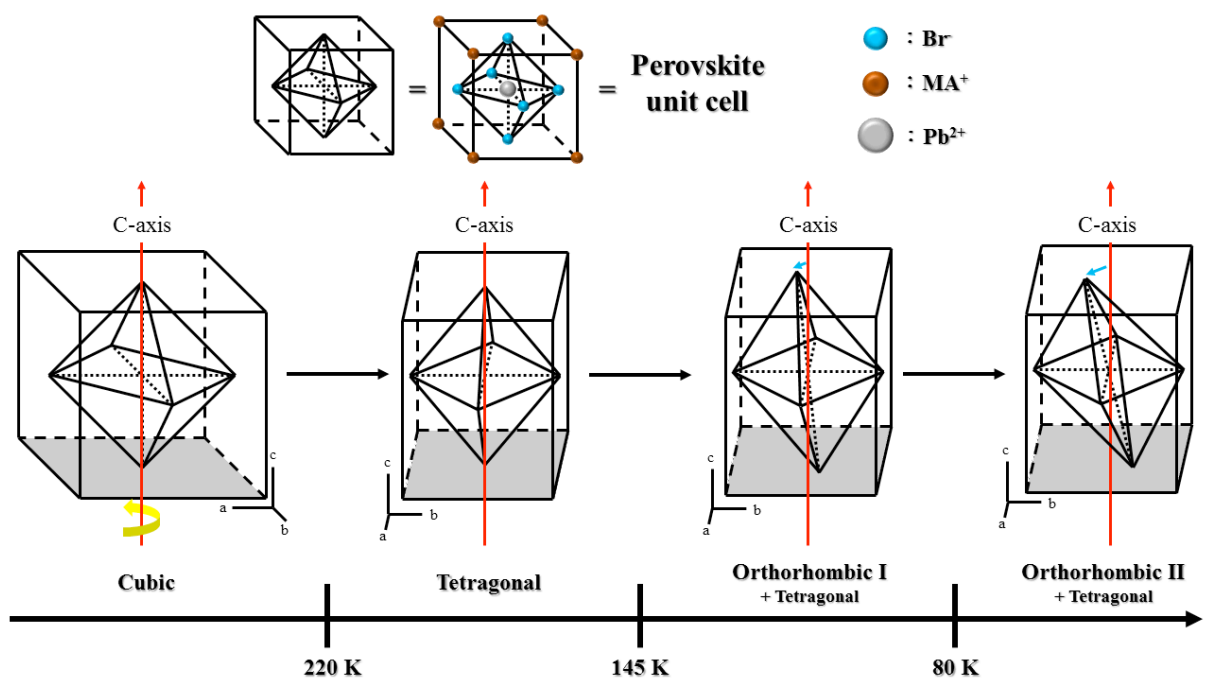


Figure S4. The structural changes at different temperature stages throughout the cooling process are displayed through a schematic of the 3D MAPbBr₃ crystal structure.