

Supplementary Information

Controllable Growth of Two-Dimensional Perovskite Microstructures

Chen Fang¹, Junze Li¹, Jun Wang¹, Rong Chen¹, Haizhen Wang², Shangui Lan¹, Yining Xuan¹,
Hongmei Luo², Peng Fei¹ and Dehui Li^{1,3*}

¹*School of Optical and Electronic Information, Huazhong University of Science and Technology,
Wuhan, 430074, China;*

²*Department of Chemical and Materials Engineering, New Mexico State University, NM 88003,
United States;*

³*Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and
Technology, Wuhan, 430074, China;*

*Correspondence to: Email: dehuili@hust.edu.cn.

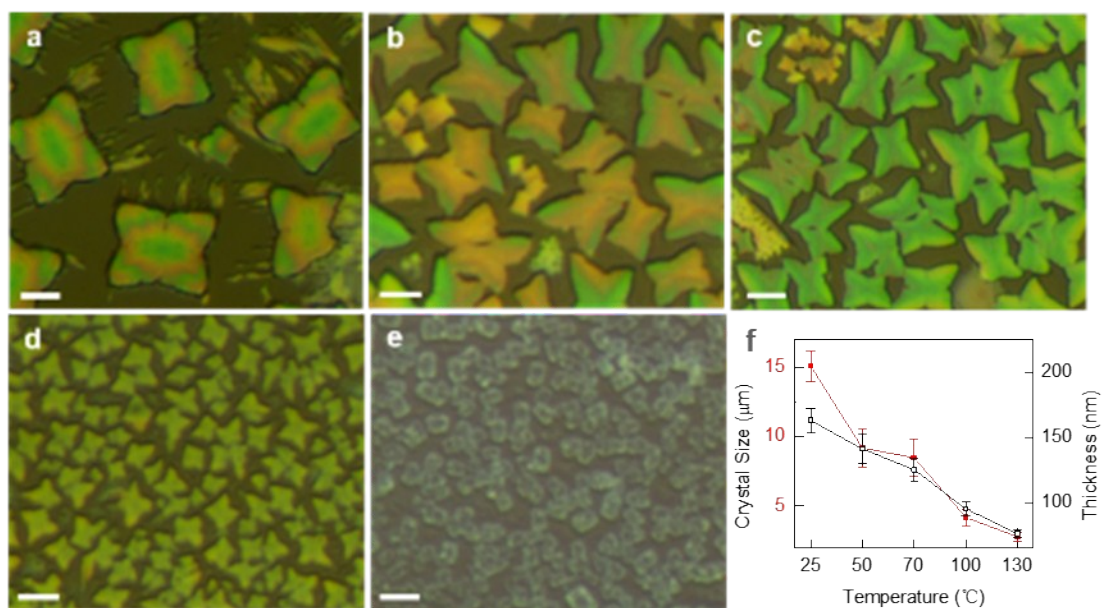


Fig. S1 OM images of $(\text{BA})_2\text{PbI}_4$ butterflies grown on glass substrate at crystallization temperatures of (a) 25 $^{\circ}\text{C}$, (b) 50 $^{\circ}\text{C}$, (c) 70 $^{\circ}\text{C}$, (d) 100 $^{\circ}\text{C}$ and (e) 130 $^{\circ}\text{C}$ with the mass ratio of 8.25%. The scale bar is 5 μm . (f) Plots of crystal size and thickness of $(\text{BA})_2\text{PbI}_4$ butterflies against the crystallization temperature.

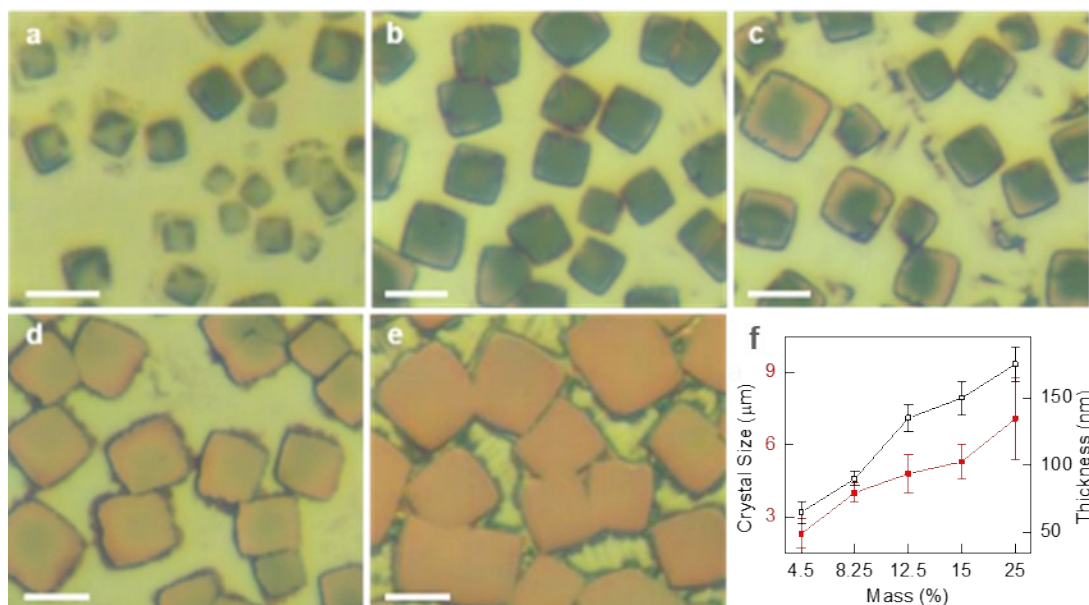


Fig. S2 OM images of $(\text{BA})_2\text{PbI}_4/(\text{BA})_2(\text{MA})\text{Pb}_2\text{I}_7$ square plates grown on Si substrate at mass ratios of (a) 4.5%, (b) 8.25%, (c) 12.5%, (d) 15% and (e) 25% with the crystallization temperature of 70°C. The scale bar is 5 μm . (f) Plots of crystal size and thickness of $(\text{C}_4\text{H}_9\text{NH}_3)_2\text{PbI}_4/(\text{C}_4\text{H}_9\text{NH}_3)_2(\text{CH}_3\text{NH}_3)\text{Pb}_2\text{I}_7$ square plates against the perovskite mass ratio in DMF.