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Ultrafast fabrication of cavity-controlled perovskite-crystallites by spin-coating method for microlasers

Junhan Guo, Longtao Li, Bin Liu, Yang Tang, Liang Qin, Zhenbo Deng, Zhidong Lou, Yufeng Hu, Feng Teng, Yanbing Hou**

J. Guo, L. Li, B. Liu, Y. Tang, Dr. L. Qin, Prof. Z. Deng, Prof. Z. Lou, Prof. Y. Hu, Prof. F. Teng, Prof. Y. Hou

Key Laboratory of Luminescence and Optical Information Ministry of Education

Beijing JiaoTong University

Beijing 100044, P. R. China.

E-mail address: qinliang@bjtu.edu.cn; ybhou@bjtu.edu.cn

Table 1. Comparison table of time required for preparation of perovskite micro-nano single crystals.

Material	Morphology	crystallization period	Reference
$FAPbI_3$	nanowire	20 h	[1]
$MAPbCl_3$	nanowire	12 h	[2]
$MAPbBr_3$	microdisk	20 min	[3]
$FAPbBr_3$	microdisk	20 h	[4]
$MAPbBr_3$	microdisk	1.5 h	[5]
$CsPbCl_3$	microplatelet	15 min	[6]
$MAPbBr_3$	microdisk	2 min	This work

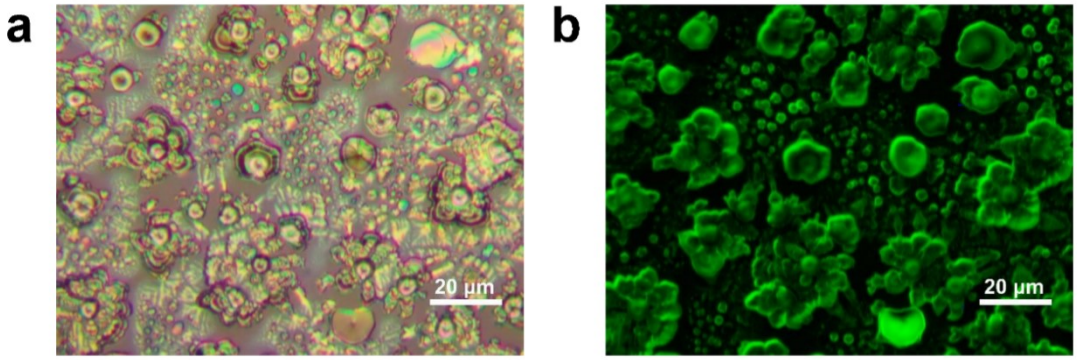


Figure S1. a, b) The microscopic image and fluorescence image of the crystals developed from DMF-only precursor solution.

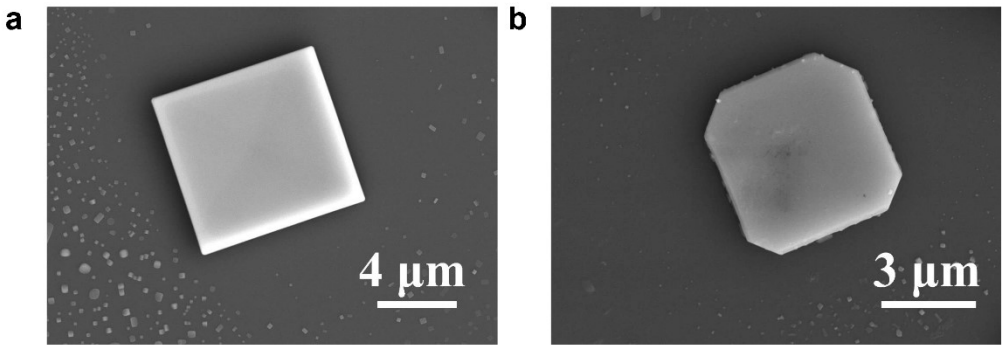
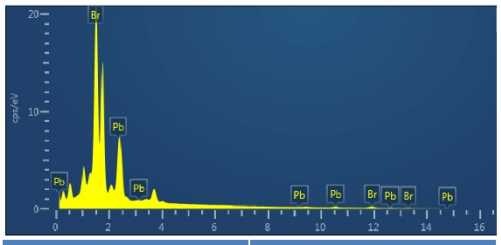


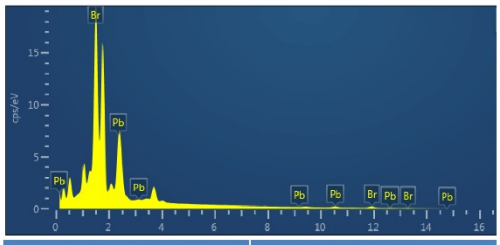
Figure S2. a, b) SEM images of square and octagonal perovskite crystals.

a



Element	Percentage of atoms
Pb	24.69
Br	75.31

b



Element	Percentage of atoms
Pb	25.49
Br	74.51

Figure S3. a) Distribution of elements in square perovskite microdisks. b) Distribution

of elements in octagonal perovskite microdisks.

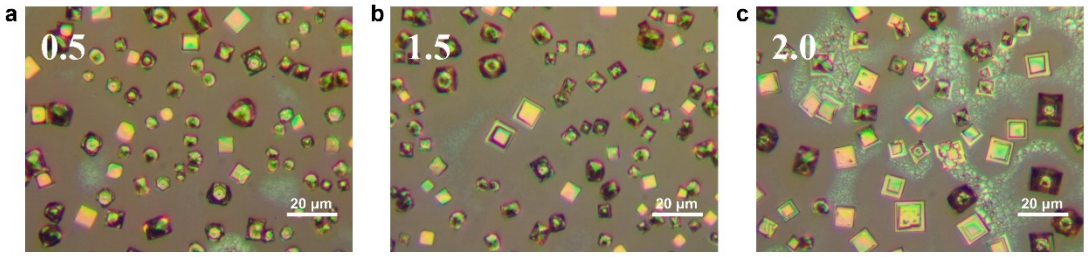


Figure S4. a-c) Microscopic images of crystals developed from the precursor solution with different contents of NMP.

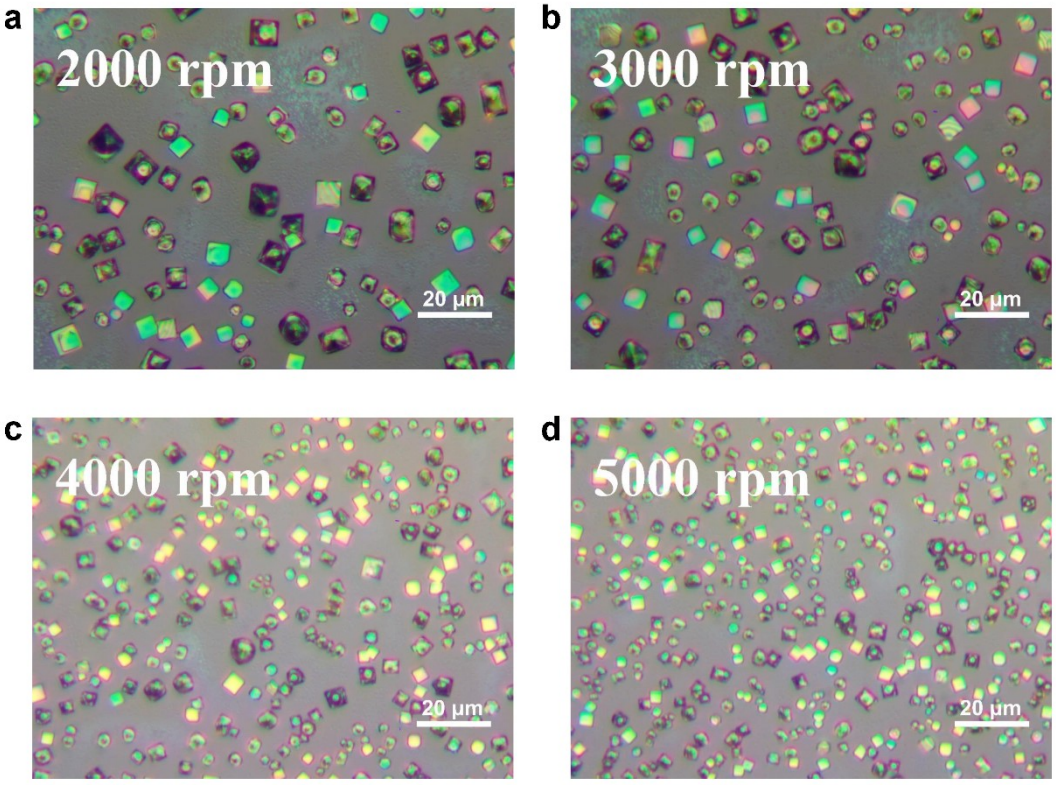


Figure S5. a-d) Microscopic images of crystals prepared at different spin-coating speeds.

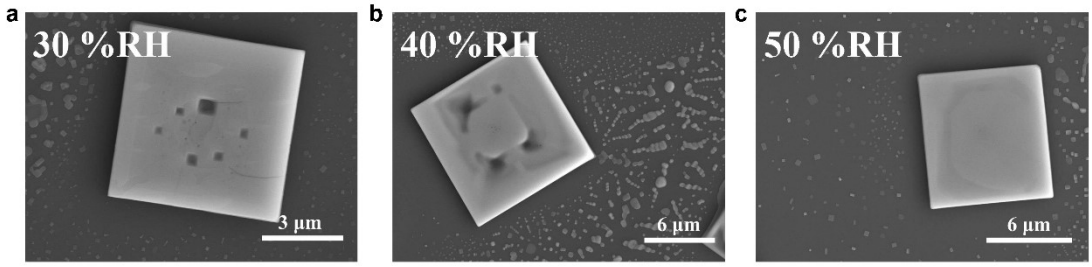


Figure S6. a) SEM images of square microdisks prepared under different humidity atmospheres.

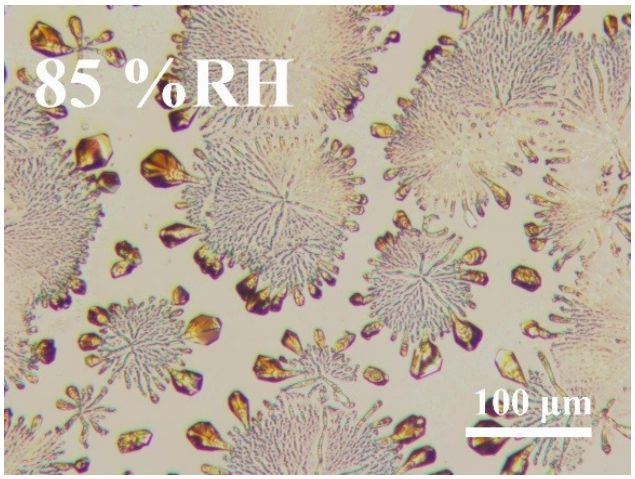


Figure S7. Microscopic image of crystals prepared at the humidity of 85 %RH.

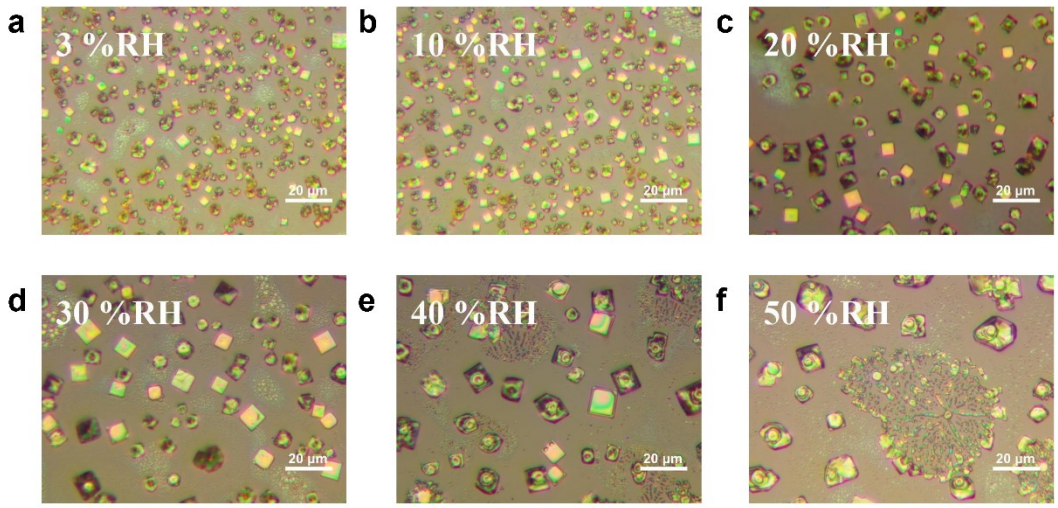


Figure S8. a-f) Microscopic images of $MAPbBr_3$ microdisks prepared at different

humidity levels.

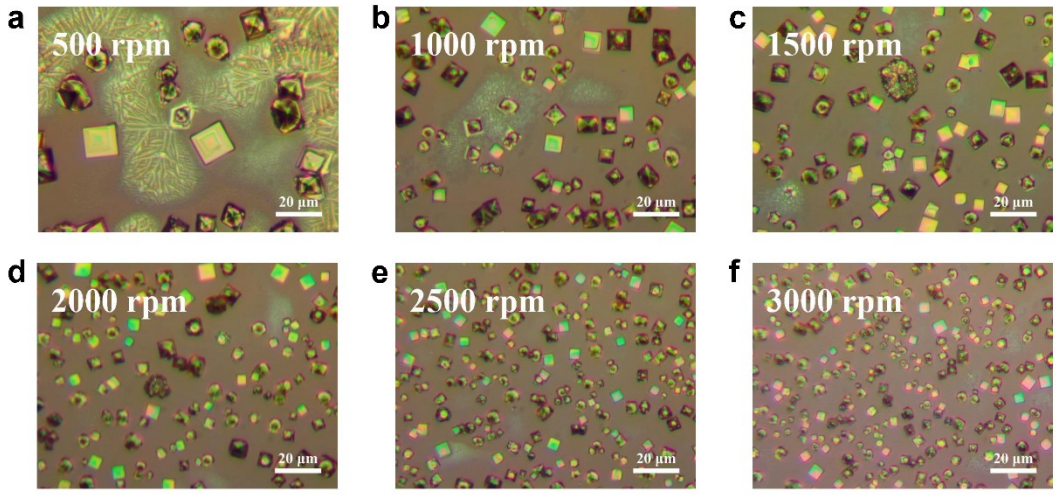


Figure S9. a-f) Microscopic images of $MAPbBr_3$ microdisks prepared at different spin-coating speeds.

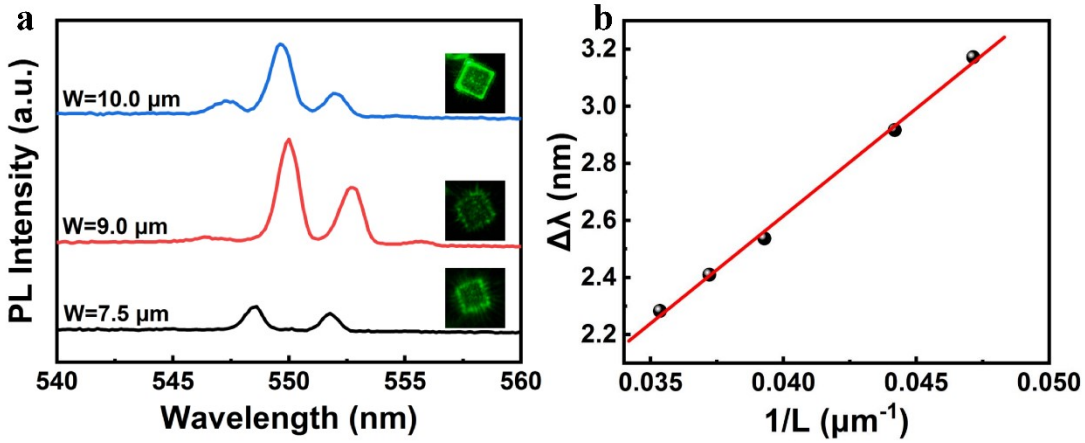


Figure S10. a) Spectra of perovskite microdisks with different sizes under the excitation of the laser with intensity above the threshold. b) The spacing Δλ between two modes is calculated and plotted as a function of the reciprocal of the total internal reflection path, L.

References

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