

## Supporting information

# Direct Nanoscale Visualization of the Electric-Field-Induced Aging Dynamics of MAPbI<sub>3</sub> thin films

Nikita A. Emelianov<sup>1</sup>, Victoria V. Ozerova<sup>1</sup>, Yuri S. Fedotov<sup>2</sup>, Mikhail V. Zhidkov<sup>1</sup>, Rasim R. Saifutiyarov<sup>3</sup>, Maria S. Malozovskaya<sup>3</sup>, Mikhail S. Leshchev<sup>1</sup>, Eugeny V. Golosov<sup>1</sup>, Lyubov A. Frolova<sup>1</sup>, Pavel A. Troshin<sup>4,5,1\*</sup>

1 Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry, Russian Academy of Sciences, Academician Semenov Ave. 1, Chernogolovka 142432, Russia

2 Institute of Solid State Physics, Russian Academy of Sciences, Academician Osipyan Str. 2, 142432 Chernogolovka, Russia

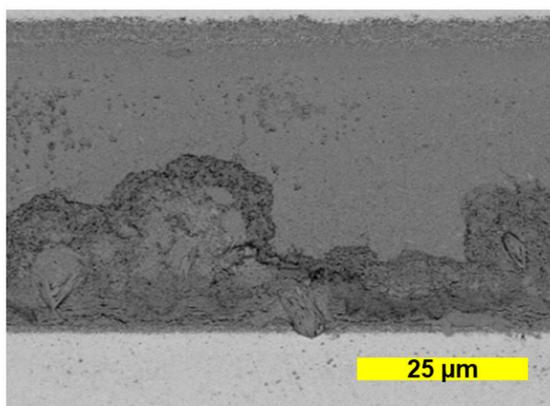
3 National Research Centre "Kurchatov Institute," Moscow, 123182 Russia

4 Harbin Institute of Technology, 92 West Dazhi Street, Nan Gang District, Harbin 150001, China

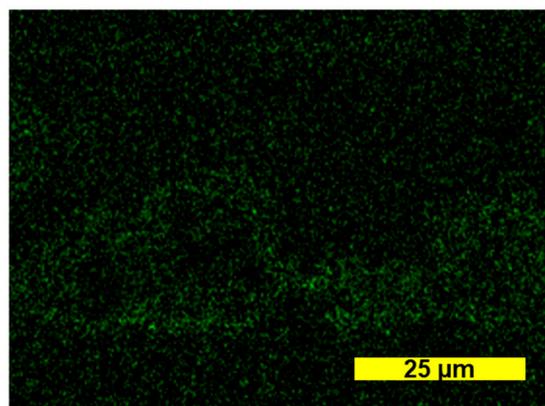
5 Zhengzhou Research Institute of HIT, 26 Longyuan East 7th, Jinshui District, Zhengzhou 450000, China

\* Correspondence: troshin2003@inbox.ru (P.A.T.)

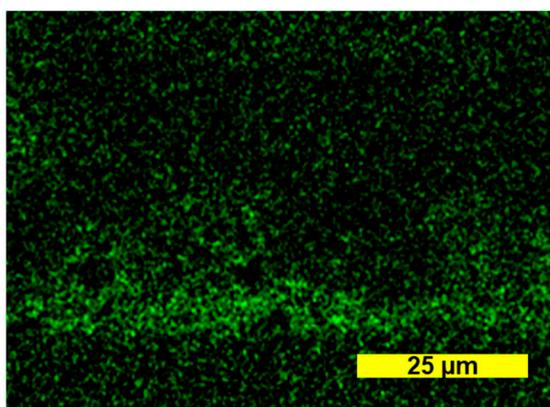
**Figure S1.** SEM microscopy (a) and EDX mapping Si (b), Na (c), O (d) of MAPbI<sub>3</sub> channel after bias exposure for 16 days



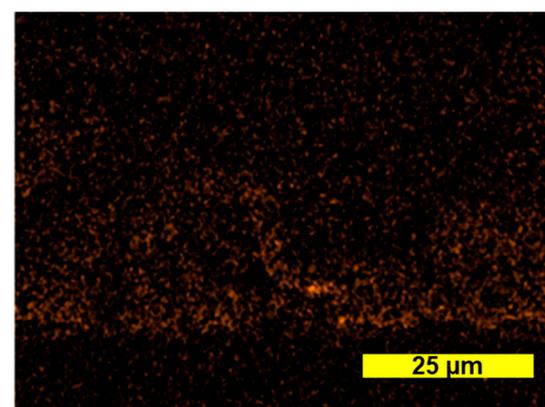
a)



b)



c)



d)