



US 20240215427A1

(19) **United States**

(12) **Patent Application Publication**  
**YANG et al.**

(10) **Pub. No.: US 2024/0215427 A1**

(43) **Pub. Date: Jun. 27, 2024**

(54) **PEROVSKITE PATTERNED FILM AND  
PREPARATION METHOD AND  
APPLICATION THEREOF**

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(21) Appl. No.: **18/531,732**

(22) Filed: **Dec. 7, 2023**

(30) **Foreign Application Priority Data**

Dec. 26, 2022 (CN) ..... 202211676100.7

**Publication Classification**

(51) **Int. Cl.**  
**H10K 71/18** (2006.01)  
**C08J 5/18** (2006.01)

(52) **U.S. Cl.**

CPC ..... **H10K 71/18** (2023.02); **C08J 5/18**  
(2013.01); **C08J 2333/12** (2013.01); **C08J**  
**2383/04** (2013.01); **H10K 50/11** (2023.02)

(57)

**ABSTRACT**

The disclosure provides a perovskite patterned film and a preparation method and application thereof. The preparation method comprises the following steps: coating a  $\text{PbX}_2$  precursor on a substrate, and annealing to obtain a  $\text{PbX}_2$  film substrate; coating AY salt on the nano stamp with the pattern, and annealing to obtain an AY film nano stamp; carrying out nanoimprinting to obtain an  $\text{APb}(\text{X},\text{Y})_3$  perovskite patterned film. According to the method, the perovskite pattern is accurately constructed on the  $\text{PbX}_2$  substrate in a mode of combining contact imprinting and ion diffusion, the  $\text{PbX}_2$ /perovskite/ $\text{PbX}_2$  coplanar surface smooth thin film is obtained, the perovskite pattern serves as an active area, the rest  $\text{PbX}_2$  naturally serves as a wide-band-gap insulation/inert isolation material, the residual rate of the thin film is low, and the yield is greatly improved.

