



US 20240244939A1

(19) **United States**(12) **Patent Application Publication**
SHI et al.(10) **Pub. No.: US 2024/0244939 A1**(43) **Pub. Date: Jul. 18, 2024**(54) **DISPLAY APPARATUS, DISPLAY PANEL AND
MANUFACTURING METHOD THEREFOR****Publication Classification**(71) Applicants: **Chengdu BOE Optoelectronics
Technology Co., Ltd.**, Sichuan (CN);
BOE Technology Group Co., Ltd.,
Beijing (CN)(72) Inventors: **Quan SHI**, Beijing (CN); **Bo SHI**,
Beijing (CN); **Guanghua XU**, Beijing
(CN); **Zeyu LI**, Beijing (CN); **Chi YU**,
Beijing (CN); **Haijun QIU**, Beijing
(CN); **Ming HU**, Beijing (CN); **Weiyun
HUANG**, Beijing (CN); **Xiangdan
DONG**, Beijing (CN); **Hui GUAN**,
Beijing (CN)(51) **Int. Cl.**
H10K 59/80 (2006.01)
H10K 59/12 (2006.01)
H10K 59/122 (2006.01)
H10K 59/40 (2006.01)
(52) **U.S. Cl.**
CPC **H10K 59/879** (2023.02); **H10K 59/1201**
(2023.02); **H10K 59/122** (2023.02); **H10K**
59/40 (2023.02)(57) **ABSTRACT**

A display panel includes a driving backplane, a plurality of light-emitting devices spaced apart at a side of the driving backplane a pixel definition layer located at a same side of the driving backplane as the light-emitting device and provided with a plurality of openings and a lens layer located at a side of the light-emitting device away from the driving backplane. The lens layer includes a separating lens and an intermediate lens, the separating lens is provided with a light-transmitting hole, and the intermediate lens is located within a range surrounded by the light-transmitting hole and is spaced apart from a sidewall of the light-transmitting hole. The display panel further includes a dielectric layer covering the lens layer and filling the light-transmitting hole, and a cover plate located at a side of the dielectric layer away from the driving backplane.

(21) Appl. No.: **18/563,460**(22) PCT Filed: **Feb. 28, 2022**(86) PCT No.: **PCT/CN2022/078191**

§ 371 (c)(1),

(2) Date: **Nov. 22, 2023**