



US 20240237463A1

(19) **United States**

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

(10) **Pub. No.: US 2024/0237463 A1**

(43) **Pub. Date: Jul. 11, 2024**

(54) **DISPLAY SUBSTRATE AND RELATED DEVICES**

application No. PCT/CN2020/132838 on Nov. 30, 2020.

(71) Applicants: **CHENGDU BOE OPTOELECTRONICS TECHNOLOGY CO., LTD.**, Chengdu (CN); **BOE TECHNOLOGY GROUP CO., LTD.**, Beijing (CN)

**Publication Classification**

(51) **Int. Cl.**  
**H10K 59/35** (2006.01)  
(52) **U.S. Cl.**  
CPC ..... **H10K 59/353** (2023.02)

(72) Inventors: **Qian XU**, Beijing (CN); **Tong NIU**, Beijing (CN); **Yan HUANG**, Beijing (CN); **Guomeng ZHANG**, Beijing (CN); **Chang LUO**, Beijing (CN); **Jianpeng WU**, Beijing (CN); **Peng XU**, Beijing (CN); **Fengli JI**, Beijing (CN); **Yi ZHANG**, Beijing (CN); **Benlian WANG**, Beijing (CN); **Ming HU**, Beijing (CN)

(57) **ABSTRACT**

The present disclosure provides a display substrate and related devices. The display substrate includes a plurality of first sub-pixels, second sub-pixels and third sub-pixels. In a first direction, the first sub-pixels and the third sub-pixels are arranged alternately to form a plurality of first sub-pixel rows, the second sub-pixels form a plurality of second sub-pixel rows, the first sub-pixel rows and the second sub-pixel rows are arranged alternately in a second direction, connection lines of center points of two first sub-pixels and two third sub-pixels form a first virtual quadrilateral, the two first sub-pixels are located at two vertex angles of the first virtual quadrilateral which are opposite to each other, one second sub-pixel is located within the first virtual quadrilateral, and the first virtual quadrilateral includes two interior angles each being equal to 90° and two interior angles each being not equal to 90°.

(21) Appl. No.: **18/617,013**

(22) Filed: **Mar. 26, 2024**

**Related U.S. Application Data**

(63) Continuation of application No. 17/435,917, filed on Sep. 2, 2021, now Pat. No. 11,974,482, filed as

