



US 20250145885A1

(19) **United States**

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

(10) **Pub. No.: US 2025/0145885 A1**

(43) **Pub. Date: May 8, 2025**

(54) **QUANTUM DOTS COATED WITH
BLUE-LIGHT ABSORPTION LAYER AND
METHOD OF FORMING THE SAME**

(71) Applicant: **OPULENCE OPTRONICS CO.,
LTD.**, Hsinchu City (TW)

(72) Inventors: **Yuan-Chang LU**, Hsinchu City (TW);
Shang-Wei CHOU, Hsinchu City (TW)

(73) Assignee: **OPULENCE OPTRONICS CO.,
LTD.**, Hsinchu City (TW)

(21) Appl. No.: **18/942,034**

(22) Filed: **Nov. 8, 2024**

Related U.S. Application Data

(60) Provisional application No. 63/597,139, filed on Nov.
8, 2023.

Publication Classification

(51) **Int. Cl.**
C09K 11/56 (2006.01)

(52) **U.S. Cl.**
CPC **C09K 11/565** (2013.01)

(57) **ABSTRACT**

Provided is a light-emitting quantum dot coated with at least one blue-light absorption layer, including an alloy core consisting of Cd, Se, Zn, and S, at least one first shell layer which has a wurtzite structure and is coated on a surface of the alloy core; and a second shell layer consisting of ZnS and, having a zinc blende structure and is coated on a surface of the first shell layer, wherein the element ratio of each of Zn and S accounts for 30 to 50% of the overall core, and the content of Cd and Se gradually decreases outward from the core center. Also provided is a method for preparing the core-shell type light-emitting quantum dot.

