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(54) **LIGHT-EMITTING APPARATUS WITH IMPROVED CHARGE TRANSPORT LAYER**

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(57) **ABSTRACT**

A light-emitting apparatus having an improved charge transport layer is disclosed. The apparatus may include a substrate and a first electrode layer disposed on the substrate. The apparatus may further include an emissive layer including quantum dots soluble in a first solvent having a first polarity, where the emissive layer may be in electrical contact with the first electrode layer and the second electrode layer. The apparatus may further include a hole transport layer between the emissive layer and first electrode layer and an electron transport layer between the emissive layer and the second electrode layer. The electron transport layer may include metal-oxide nanoparticles. The metal-oxide nanoparticles may be soluble in a second solvent having a second polarity lower than the first polarity.