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Envisioning Future Video Displays

Shin, Sung Tae[1*]
[1] Department of Applied Physics, Korea University, Sejong, Republic of Korea

In the last few decades, the role of displays has been continuously expanded from IT/TV, all the way to portable devices including foldable smartphone displays. As our lifestyle changes, modern displays require to evolve further to provide better connectivity and maximum reality, such as holographic displays. With the appearance of Metaverse wave, the displays for AR/VR/MR/XR applications need significant technical progress to fit comfortably into the Metaverse platform, which we believe the next big technology coming soon. Head-mounted displays with a State-of-the-Art technology will be definitely the most important component of Metaverse virtual worlds.

This lecture will address the technology strategy in the display industry. It would be also reviewed the display industry how we made and is making the growth in past and present, respectively, and how we will make the continuous growth in the display industry. The past and present technologies of displays would be also mentioned for giving the future directions of the display industry concerned "paradigm shift of LCD industry" and "mobile display era" to future displays that would be likened as "Transformer Displays" And, it would be also discussed technology selection in company strategies. In the addition, the lecture will introduce the evolution of displays [Fig. 1] including the LC modes, PVA[1] (Patterned Vertical Alignment) and IPS (In-plane Switching) for our memories, OLED, and QD-Display[2] shown in the Fig. 2.

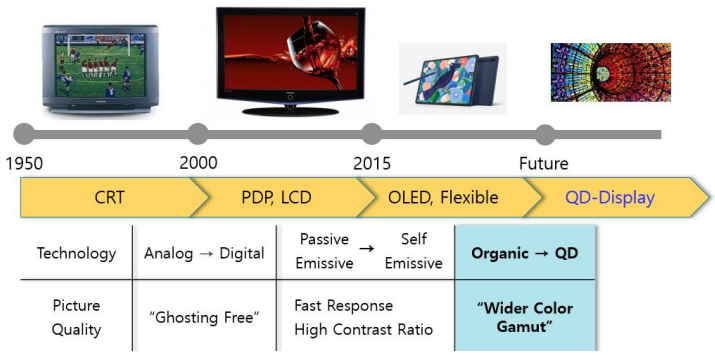

Figure 1. The evoluion of displays.

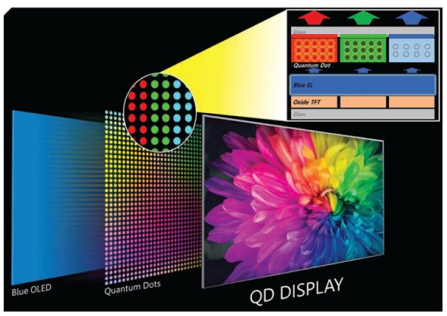

Figure 2. The structure of QD-OLED.

In summary, the lecture will deal with the remaining subjects such as the changes in displays, the changes of future IT environment, and the final goal of the future displays. Finally, I would like to suggest our challenges and our homework for the future display visions.

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* Author for Correspondence: stshin@korea.ac.kr