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Oral Presentation

## [AMD8]Advanced Driving Technology for High-quality Display

Chair: Masahide Inoue (Huawei Techs. Japan)

Co-Chair: Isao Suzumura (Japan Display Inc.)

Fri. Nov 29, 2019 3:00 PM - 4:25 PM Mid-sized Hall B (1F)

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4:05 PM - 4:25 PM

### [AMD8-4]A Novel OLED Pixel Circuit with Controllable Threshold Voltage Compensation Time

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Keywords:High frame frequency, Moving image quality, Compensation time

*This paper proposes a novel pixel circuit that adopts low temperature polycrystalline silicon thin-film transistors (LTPS TFTs) to compensate deviation of threshold voltage ( $V_{TH}$ ) of the driving TFTs (D-TFTs) and uses overlapping compensation times ( $T_{COM}$ ) to extend the period of precise sensing  $V_{TH}$  variation of the D-TFTs in each pixel. Simulation and experimental results demonstrate the proposed pixel circuit under 120 Hz Ultra High Definition (UHD) driving condition has the same compensation performance as the 60 Hz Full HD (FHD) driving condition. Therefore, the proposed pixel circuit is suitable to be used in AMOLED display with high resolution and high-frame rate and can realize uniform OLED current ( $I_{OLED}$ ) with high immunity to  $V_{TH}$  variation of the D-TFTs.*