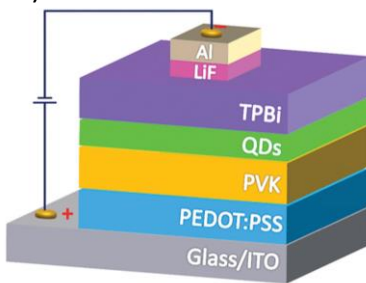


Perovskite Quantum Dots for QD LEDs

QD LEDs is an emerging technology that promises to enhance current OLED displays with higher brightness, durability and color purity. It will be an ultimate solution for flexible and curved displays in TVs, mobile and wearable devices, virtual and augmented reality glasses, automotive displays and signage. Perovskite Quantum Dots show a promise in that field alongside with InP and CdSe quantum dots. CsPb(Cl/Br)₃ and CsPbBr₃ QDs are especially efficient for blue and green QD LEDs.

BENEFITS:

- High brightness (from 500 Cd/m² for blue and from 1000 Cd/m² for green lights)
- High EQE (from 2% for blue and 5% for green)
- Short decay time (≈ 5-20 ns)
- Solution processable



PERFORMANCE:

	QD-P-450	QD-P-510
Emission	450 nm	510 nm
FHWM	< 20 nm	< 20-25 nm
Decay time	≈ 5-20 ns	≈ 5-20 ns
EQE max	> 2 %	> 5 %
Luminance max	> 500 Cd/m ²	> 1000 Cd/m ²

EXPERIMENTAL DATA for QD-P-450 and QD-P-510 (Perovskite CsPb(Cl/Br)₃ and CsPbBr₃ QDs):

QD LED based on green QD-P-510 exhibits strong electroluminescence at 510 nm with FWHM 18 nm. EQE max is > 5 % with luminance max > 1000 Cd/m². QD LED based on blue QD-P-450 demonstrates the emission at 450 nm with FWHM 20 nm. It has relatively high EQE max over 2 % with exceptional brightness 500 Cd/m².

Products portfolio:

- [Perovskite Quantum Dots \(QD-P\)](#)
Perovskite QDs CsPbX₃, oleic acid and oleylamine capped, 450-690 nm emission peaks
- [LUMAR™ CsPbBr₃ Quantum Dots](#)
Perovskite QDs CsPbBr₃, 510-530 nm emission peaks, high thermal and photo stability for LCD

RELATED LITERATURE (with our contribution):

1. [Jun Pan et al. Adv. Mater, 28, 8718–8725 \(2016\).](#)
2. [Emre Yassitipe et al. Adv. Funct. Mater, 26, 8757–8763 \(2016\).](#)
3. [Jun Pan et al. J. Am. Chem. Soc. 2018, 140, 562–565 \(2018\).](#)

