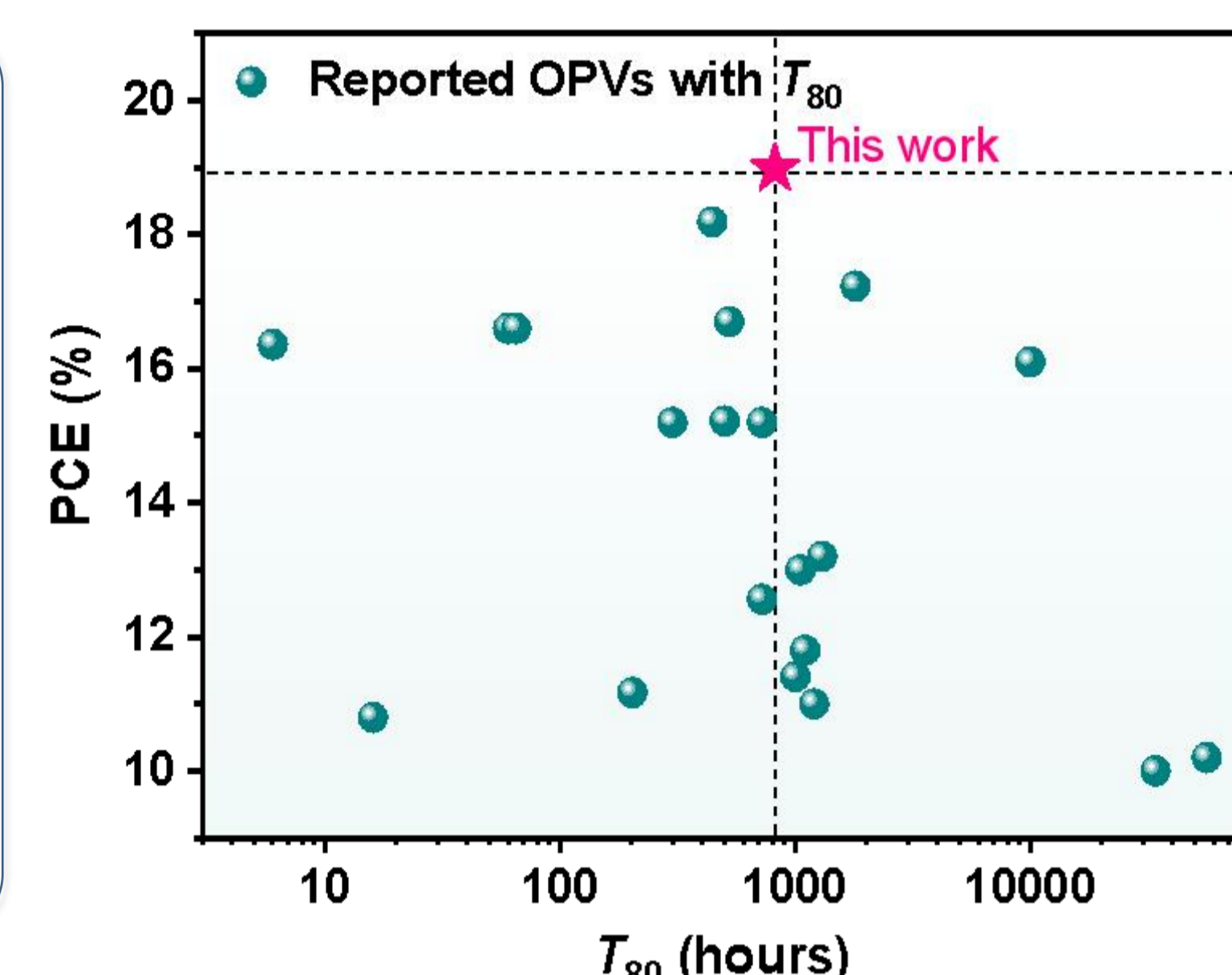
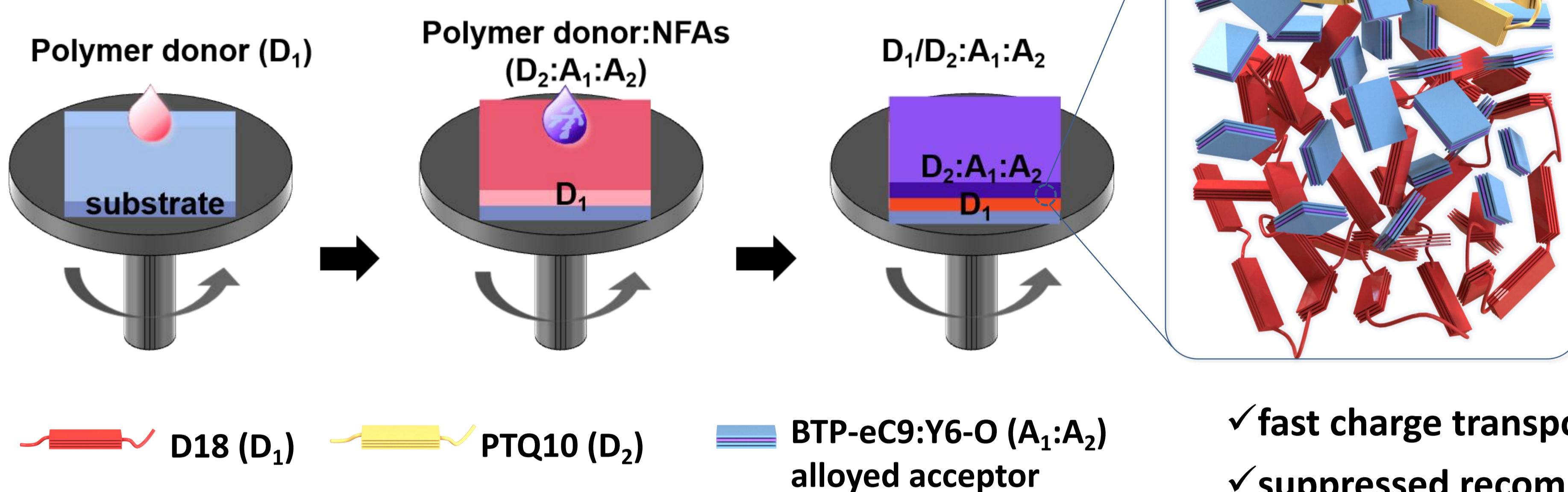


# Morphologically Engineered Multi-component Organic Solar Cells with Stratified Donor Distribution and Alloyed Acceptors for Enhanced Efficiency and Stability

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## ABSTRACT

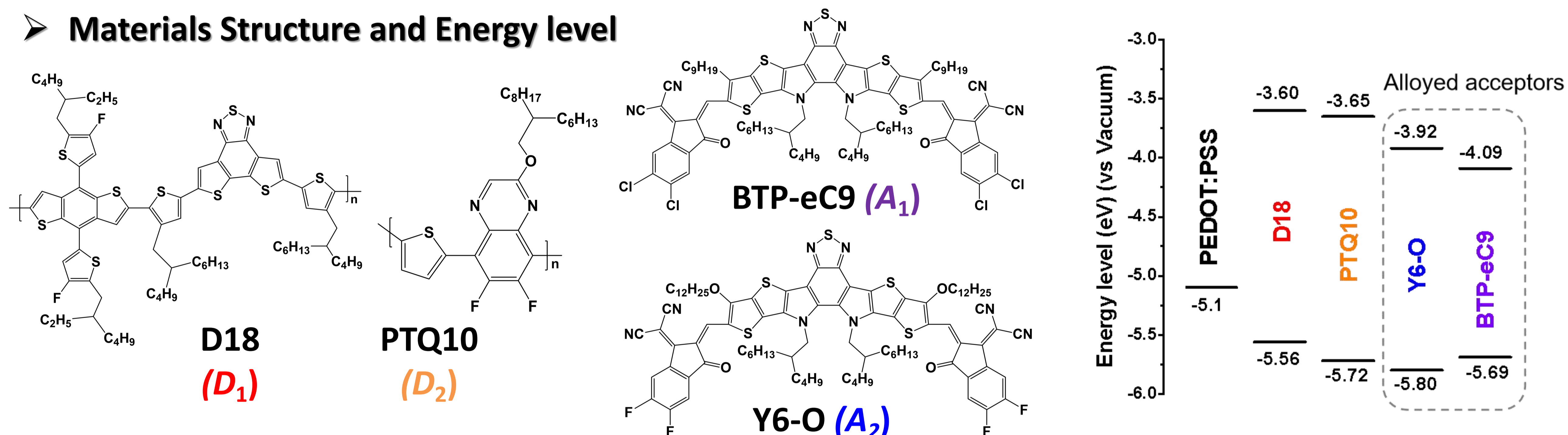
### “Stratified donor/Alloyed acceptor” Morphology



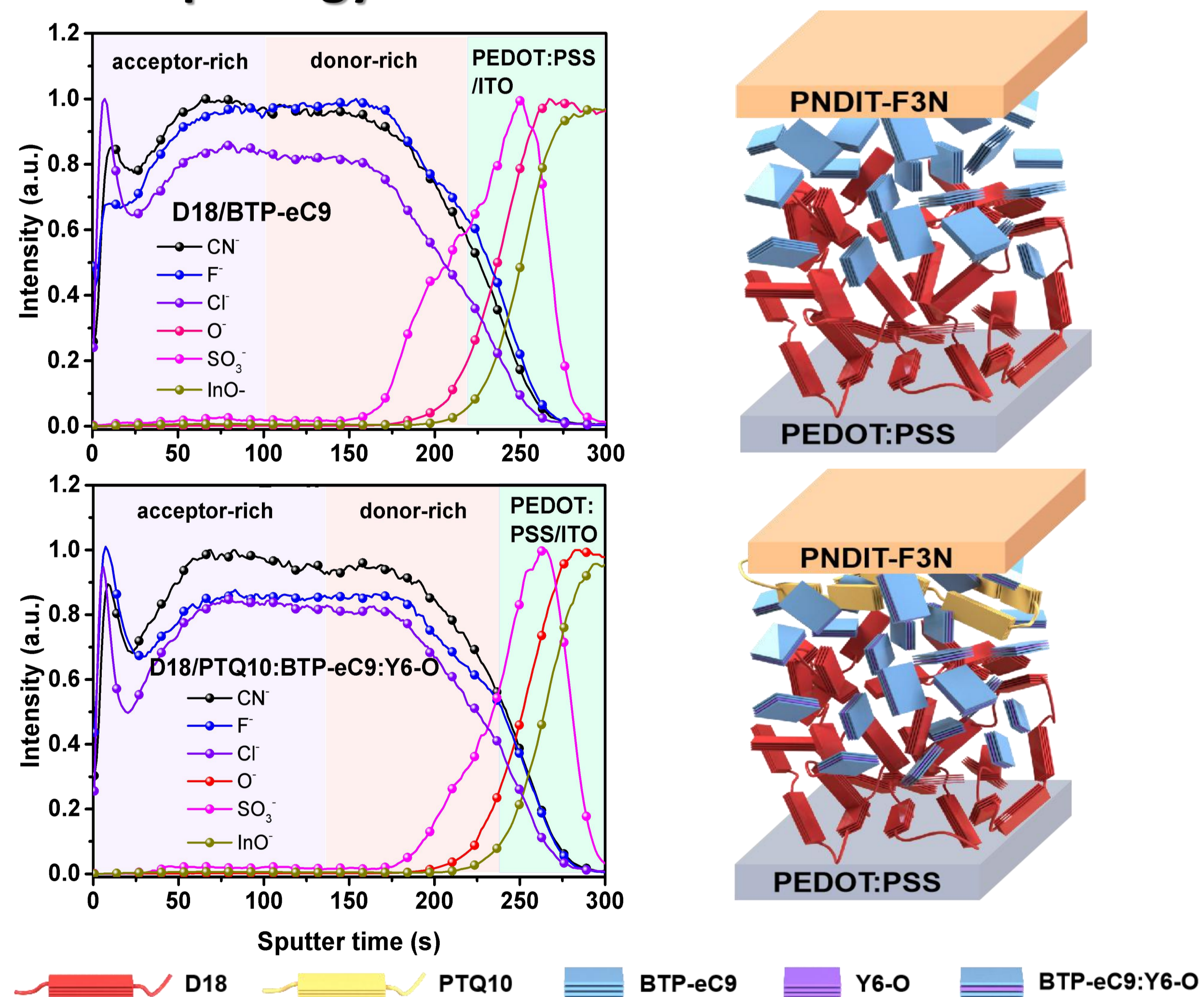
✓ reduced energy loss  
 ✓ superior stability

## RESULTS AND DISCUSSION

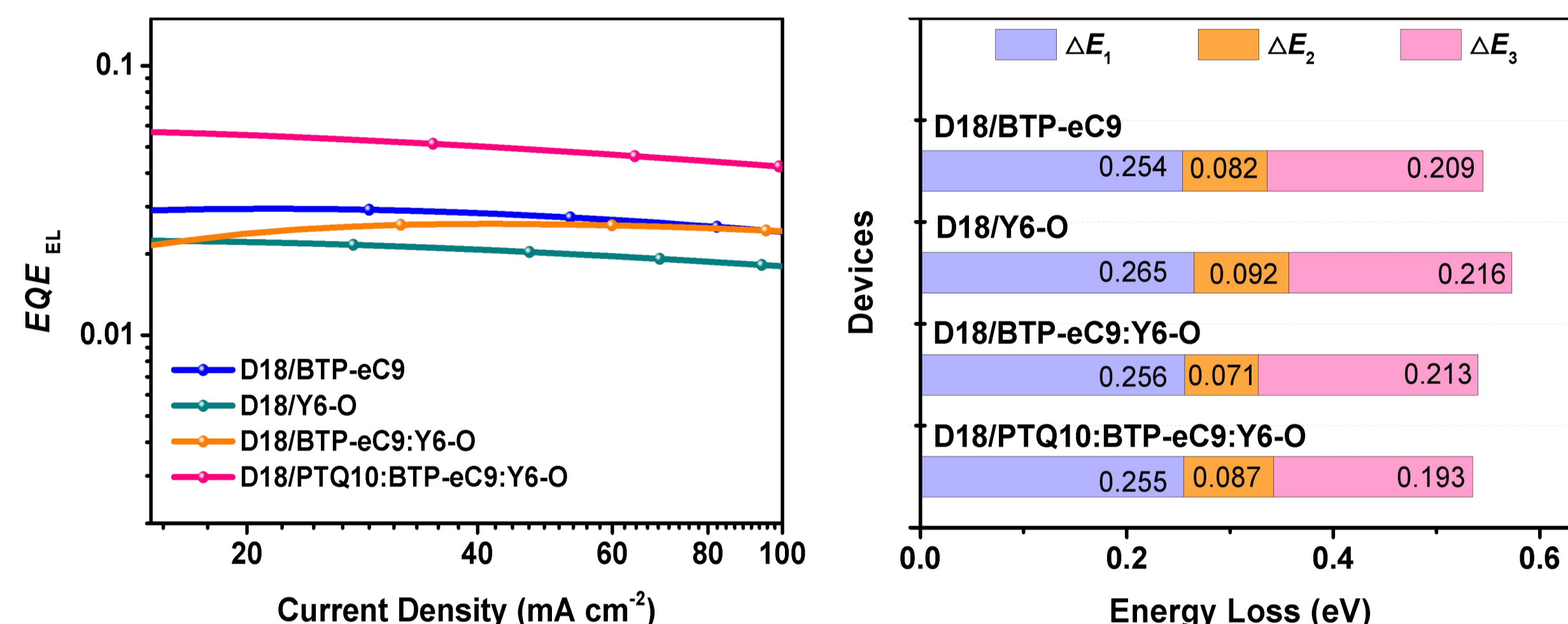
### Materials Structure and Energy level



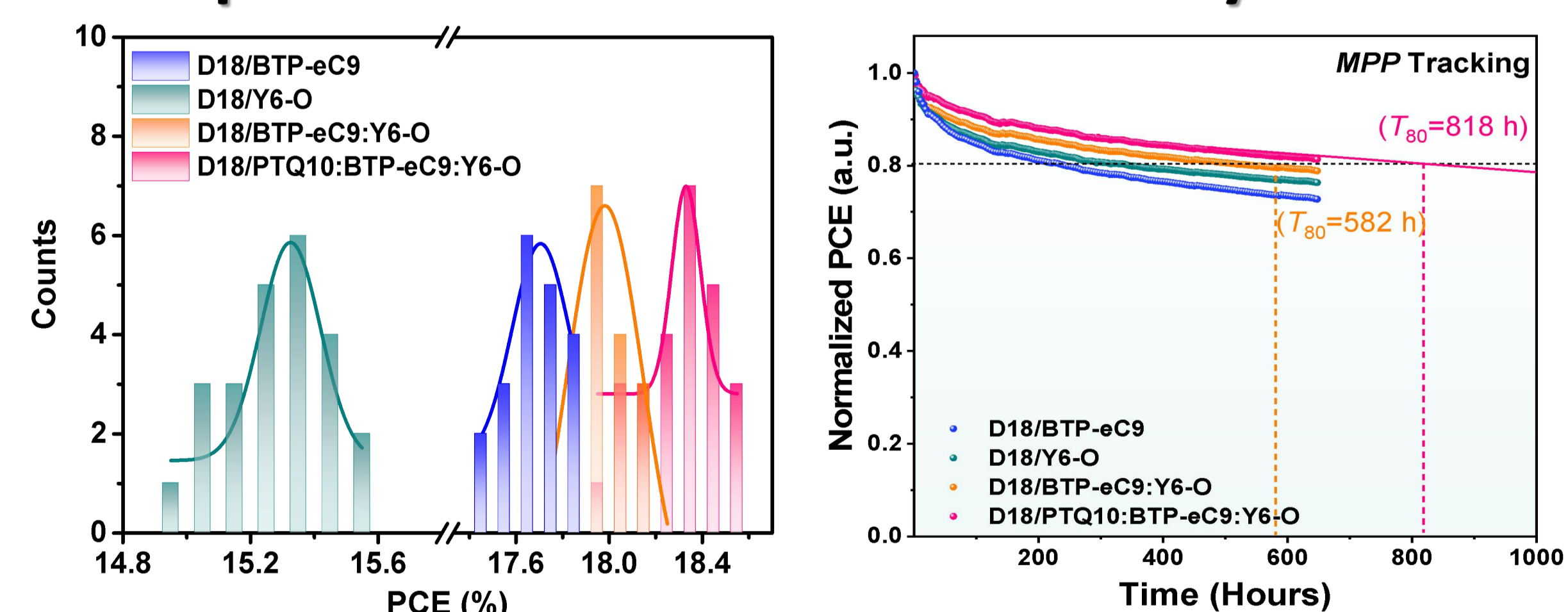
### Morphology Characterization



### Suppressed Energy Loss



### Superior Performance and Stability



## CONCLUSION

- The stratified distribution of D18 and PTQ10 with separate crystalline domains benefits the hole transfer. The well-mixed BTP-eC9:Y6-O alloyed acceptor promotes homogeneous phase separation for forming continuous electron transport pathways.
- The balanced transport and suppressed recombination in the quaternary blend delivers higher FF. The reduced energetic disorder and suppressed non-radiative energy loss contributes to the elevated Voc.