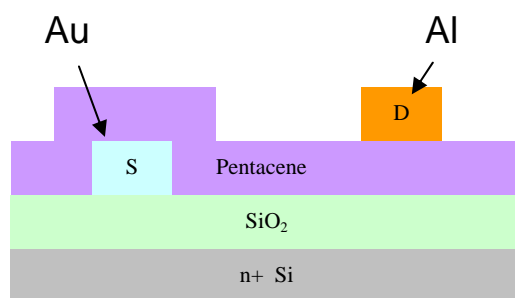


Appendix

Top-bottom Contact OTFT with asymmetric electrode Au/Al

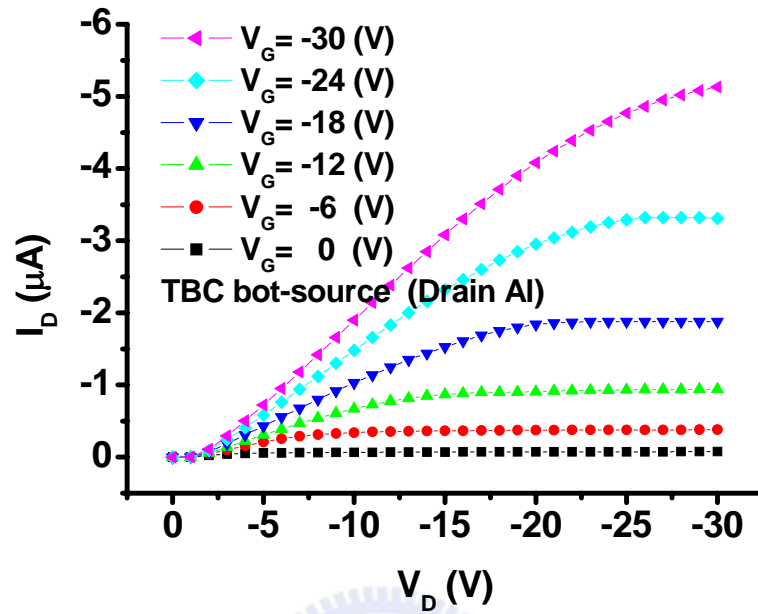
In section 3.2, TBC OTFTs are all symmetric electrode in source and drain. To clarify the metal influence of OTFT, we replace symmetric electrodes (Au/Au) with asymmetric electrodes (Au/Al). TBC structure with asymmetric metal could combine with OLED process on glass or flexible substrate.

As shown in Fig. A.1 and A.2, high work function (Au) as source and low work function metal (Al=4.3 eV) as drain have the better performance than S/D with Au. TBC bottom-source with Al-drain could have higher on-current and increase more on-current by reduction in channel length. Then, the mobility lowering with length reduction is slighter in Fig. A.3. However, low work function metal (Al=4.3) as top-source is unuseful in Fig. A.4. Large injection barrier may cause hole to inject into organic film uneasily, and it directly accounts the importance of injection interface.



TBC bottom-source with Al-drain

(a)



(b)

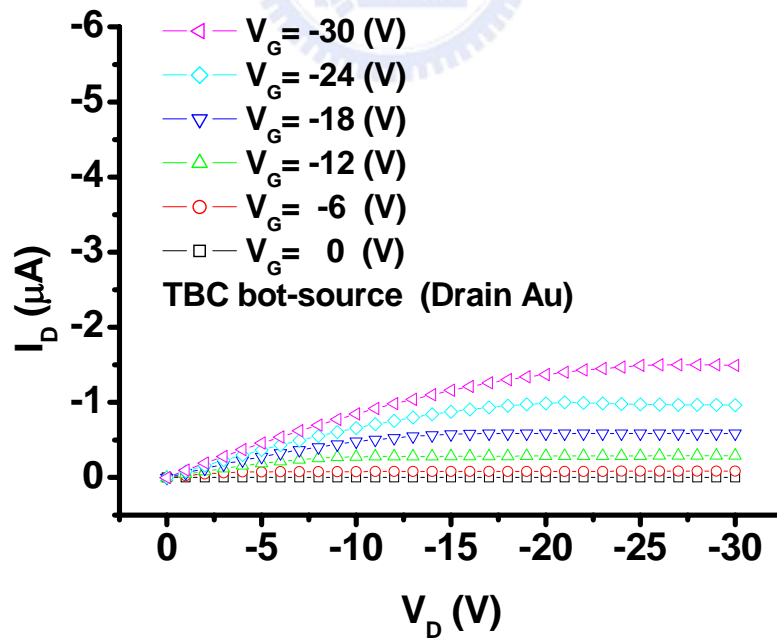


Fig. A.1 Output characteristics TBC bot-source(Au) with top-drain (a)Al (b)Au ,L=100um

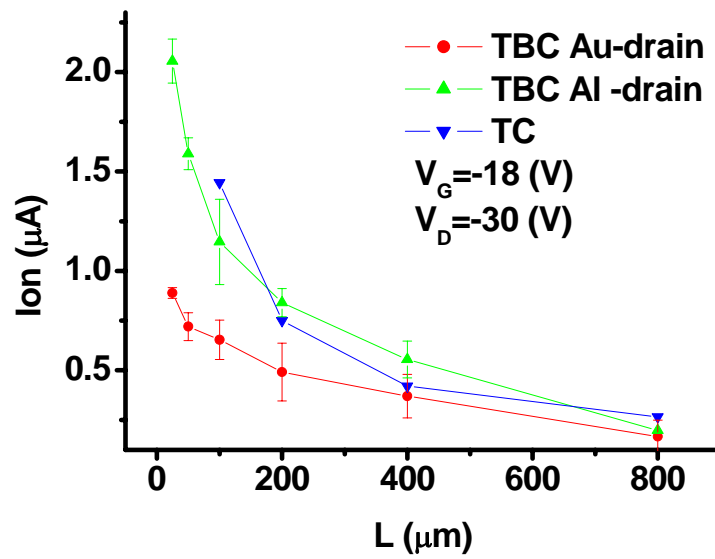


Fig. A.2 Relation between on-current and channel length in TC, TBC Au-drain, and TBC Al-drain OTFTs. (TBC OTFTs as bottom-source mode)

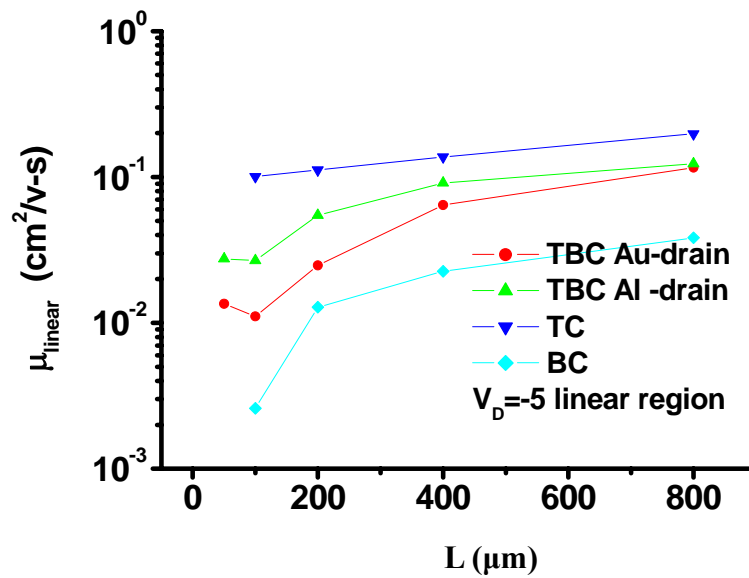


Fig. A.3 Relation between mobility and channel length in TC, BC, TBC Au-drain, and TBC Al-drain OTFTs. (TBC OTFTs as bottom-source mode)

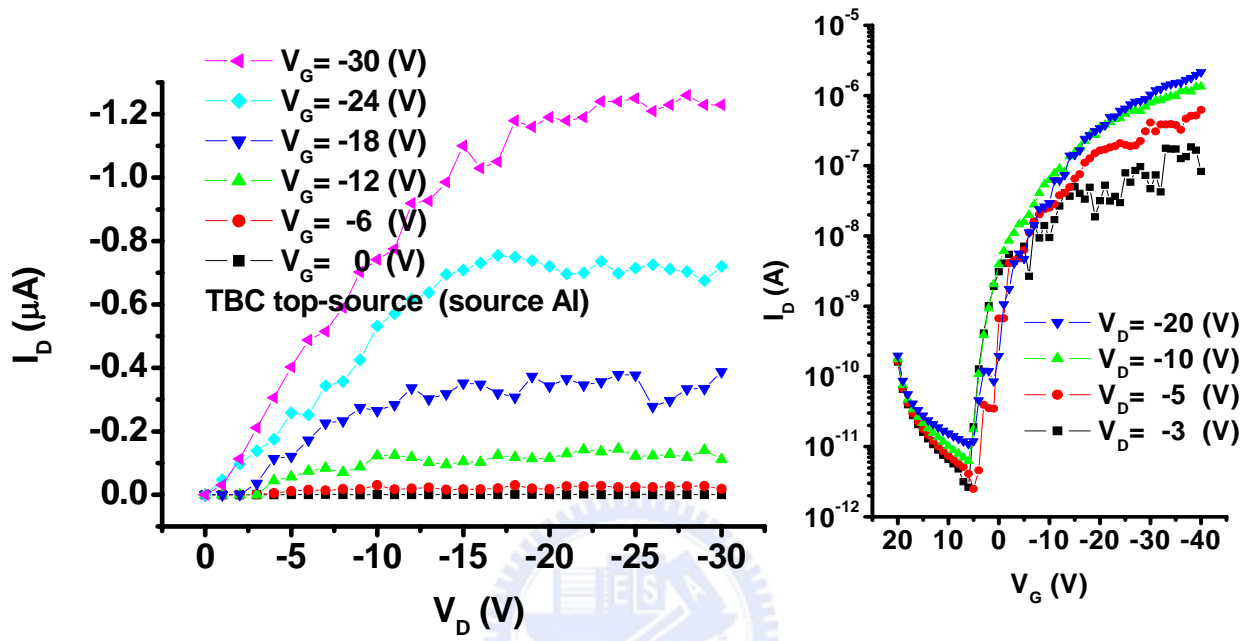


Fig. A.4 Output characteristics and transfer characteristics TBC top-source Al of TBC $L=100 \mu\text{m}$

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