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The Influences of different cathode materials on Tris-(8-Hydroxyquinoline)- Aluminum Doped with $CsNO_3$ in Organic Light emitting Devices MEI-HSIN CHEN, YIN-JUI LU, CHUNG-CHIH WU, CHIH-I WU, Graduate Institute of Photonics and Optoelectronics — This paper presents the investigations of interfacial interactions and electron-injection mechanisms between cesium nitrate ($CsNO_3$) and different cathode materials. By using ultraviolet and x-ray photoemission spectroscopy, the properties of electronic structures and the interfacial chemistry are studied. According to our results, there exists a phenomenon of electron exchange at the interface results in changes of Aluminum 2s core level binding energy by 1 eV when aluminum was deposited on $CsNO_3$. This means electrons transfer from cathode materials to the surface of $CsNO_3$, forming a strong dipolar field at the interface and reduction of the electron injection barrier. But, in contract, there exists nearly no reaction between $CsNO_3$ and silver cathode. The evidences show that $CsNO_3$ is more effective only with aluminum cathode due to a reaction between Aluminum, Cesium and Nitrogen atoms.

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