Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supplementary Information

Direct Characterization of the Doping State of Graphene Layer in Organic Semiconductor Electrode Structure by *in-situ* Photoemission Spectroscopy Analysis with Ar Gas Cluster Ion Beam Sputtering

Dong-Jin Yun[a], Seyun Kim[b], Chang Hoon Chung[a], Chang Seok Lee[a], Hiesang Sohn[c], Jung Yeon Won[a], Yong Su Kim[a], JaeGwan Chung[a], Sung Heo[a], Seong Heon Kim[a], Minsu Seol[d],, and Weon Ho Shin[e],**

E-mail: Minsu.seol@samsung.com & whshin@kicet.re.kr

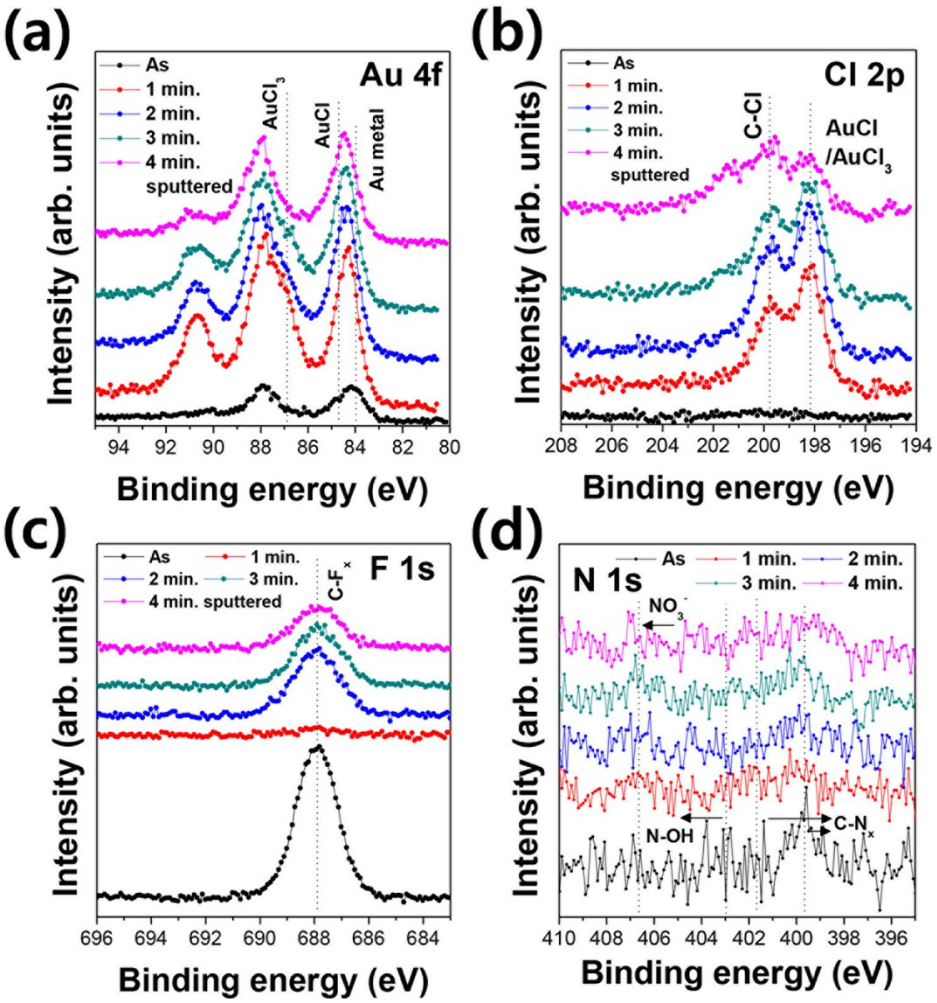

Figure S1. The XPS depth profiles of C_{60}/p-type doped Gr structures ((a) Au 4f and (b) Cl 2p of $C_{60}/AuCl_3$_Gr, (c) F 1s of C_{60}/TFSI_Gr and N 1s of C_{60}/HNO_3_Gr structures), all of which underwent an aging process of one month under ambient conditions.

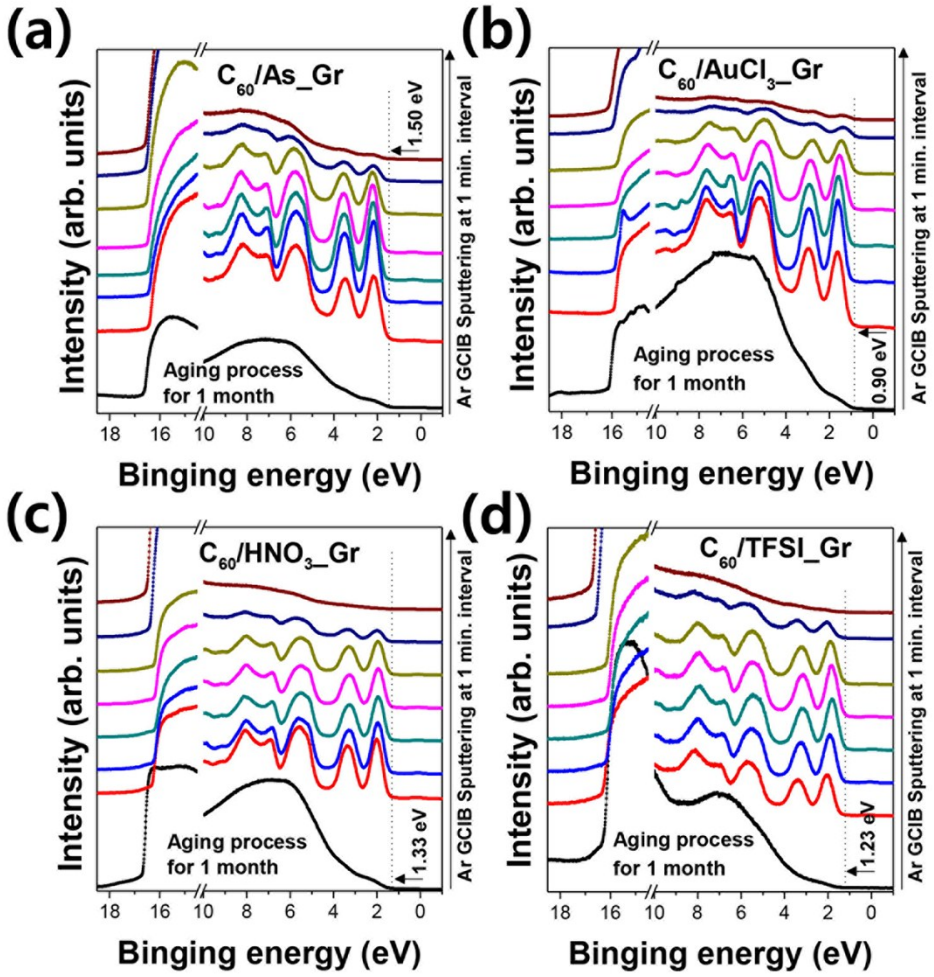

Figure S2. The UPS depth profiles of (a) C_{60}/As_Gr, (b) C_{60}/$AuCl_3$_Gr, (c) C_{60}/HNO_3_Gr and (d) C_{60}/TFSI_Gr obtained after an aging process of one month under ambient conditions.

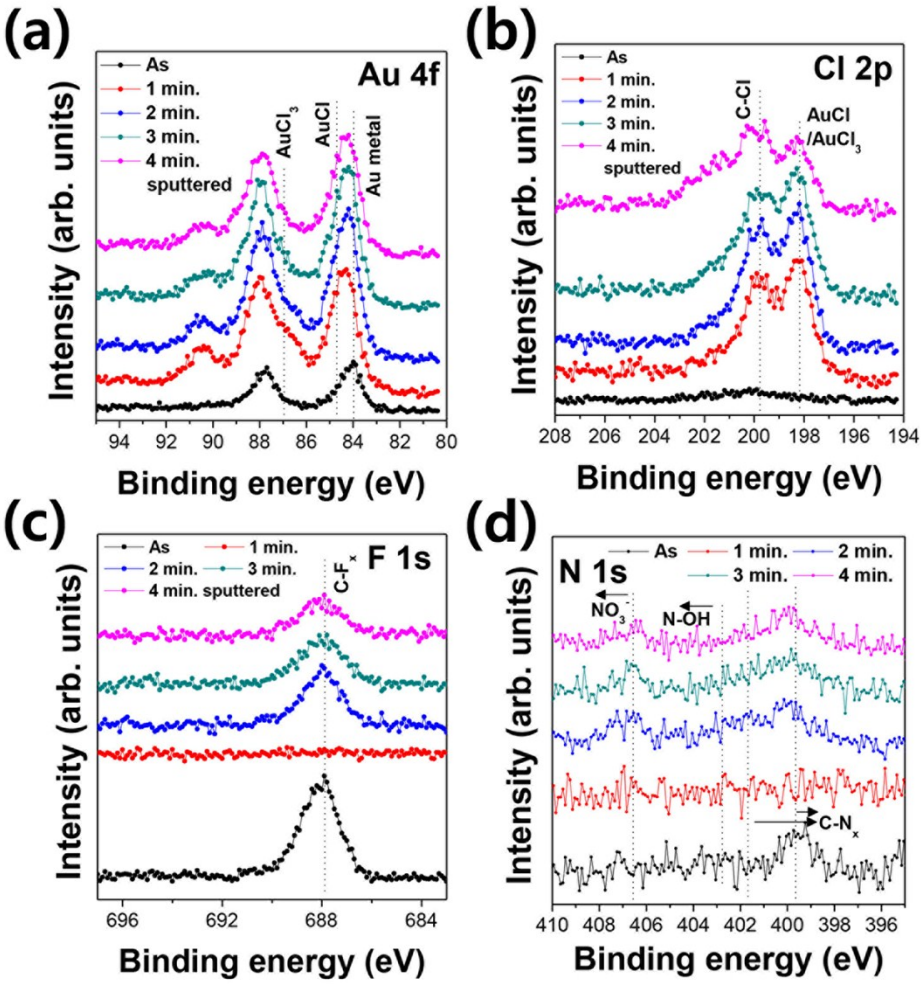

Figure S3. The XPS depth profiles of C_{60}/p-type doped Gr structures ((a) Au 4f and (b) Cl 2p of $C_{60}/AuCl_3$_Gr, (c) F 1s of C_{60}/TFSI_Gr and N 1s of C_{60}/HNO_3_Gr structures), all of which underwent an aging process of two months under ambient conditions.

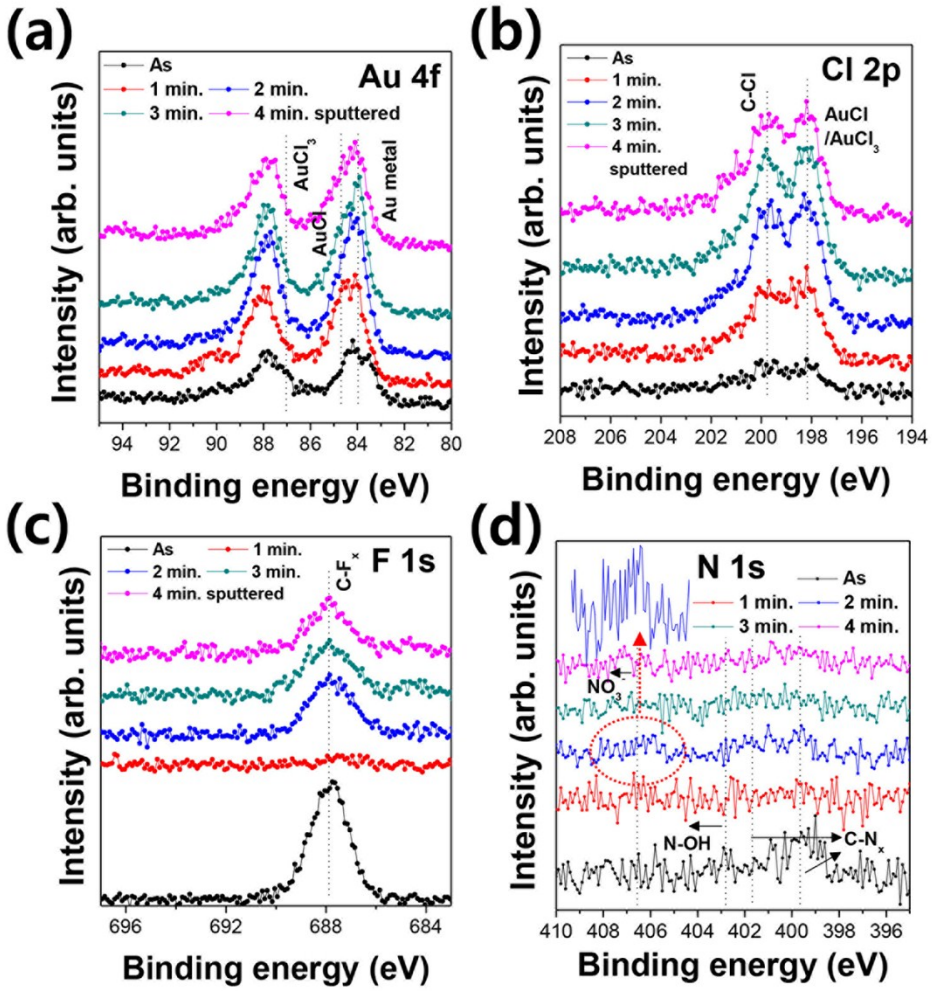

Figure S4. The XPS depth profiles of C_{60}/p-type doped Gr structures ((a) Au 4f and (b) Cl 2p of $C_{60}/AuCl_3$_Gr, (c) F 1s of C_{60}/TFSI_Gr and N 1s of C_{60}/HNO_3_Gr structures), all of which underwent an aging process of three months under ambient conditions.