

## Electromagnetic Interference Shielding Properties of Freestanding PDA Doped rGO/MWCNT Composite Paper

수 샨트 샨르마, Hoai Thanh Vuong,

Dang Thanh Truong, 정진석<sup>†</sup>

울산대학교

(jschung@mail.ulsan.ac.kr<sup>†</sup>)

With the advancement of communication technology along with electronic devices, the demand of electromagnetic interference (EMI) shielding material has also been increasing at a considerable rate. Hence, ultrathin flexible shielding materials intensively explored as potential candidate for portable electronic and communication devices. In this regard, macroscopic assemblies of carbon nanomaterials have demonstrated a tremendous role as EMI shielding material. Herein we took the advantage of the synergistic effect of polydopamine (PDA) doped reduced graphene oxide (rGO) and multiwalled carbon nanotube (MWCNT) in improving the electrical conductivity and EMI shielding effectiveness. The maximum electrical conductivity of the PDA-rGO/MWCNT is reached to 148 S/cm with an average shielding effectiveness of ~45 dB at ~50  $\mu\text{m}$  thickness in both X and Ku frequency bands respectively, which is higher than that of rGO and MWCNT individually. The finding of using the properties of PDA-rGO and MWCNT synergistically would help in designing the flexible shielding material with high electrical conductivity and superior specific shielding performance.