

Supplementary information

For

Consequences of gamma-ray irradiation on structural and electronic properties of PEDOT: PSS polymer under air and vacuum environments

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Resistivity measurement

Figure S1 shows the resistivity change as a function of dose for PEDOT: PSS films irradiated in air and vacuum environment at 0, 500, 1000, 1500 and 3000 Gy, respectively.

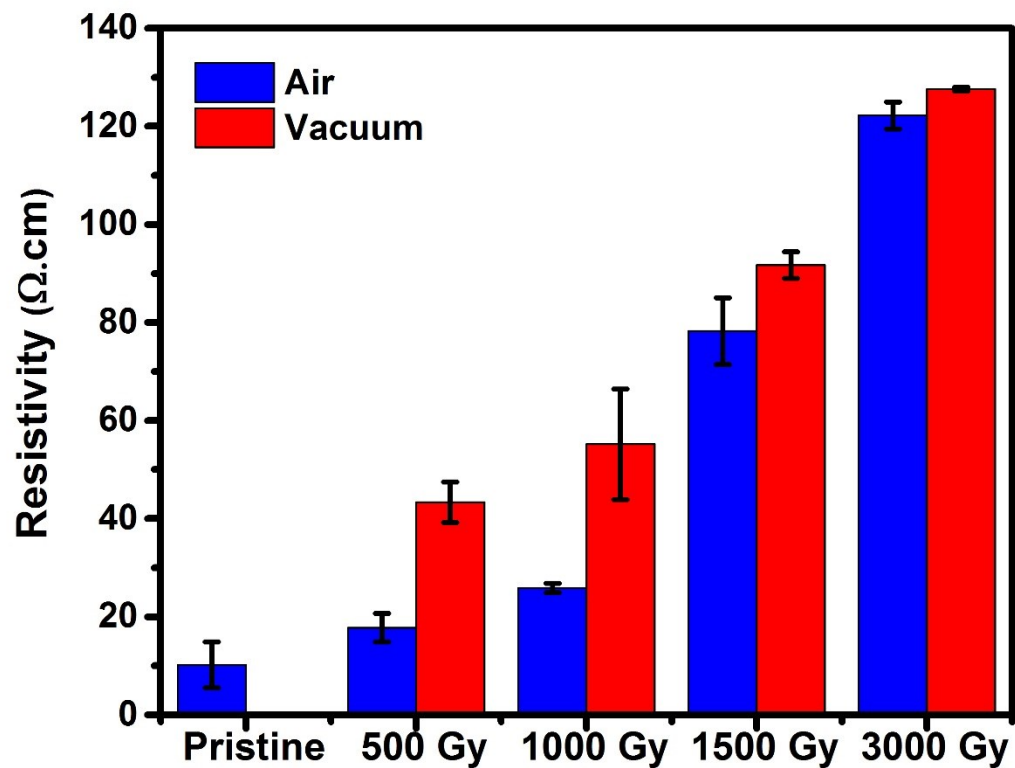


Figure S1. Resistivity change as a function of dose for the PEDOT: PSS films irradiated in air and vacuum environment.

X-ray diffraction (XRD)

XRD studies revealed the amorphous nature of PEDOT: PSS films before and after irradiation in air and vacuum environment up to 3 kGy as shown in **Figure S2**.

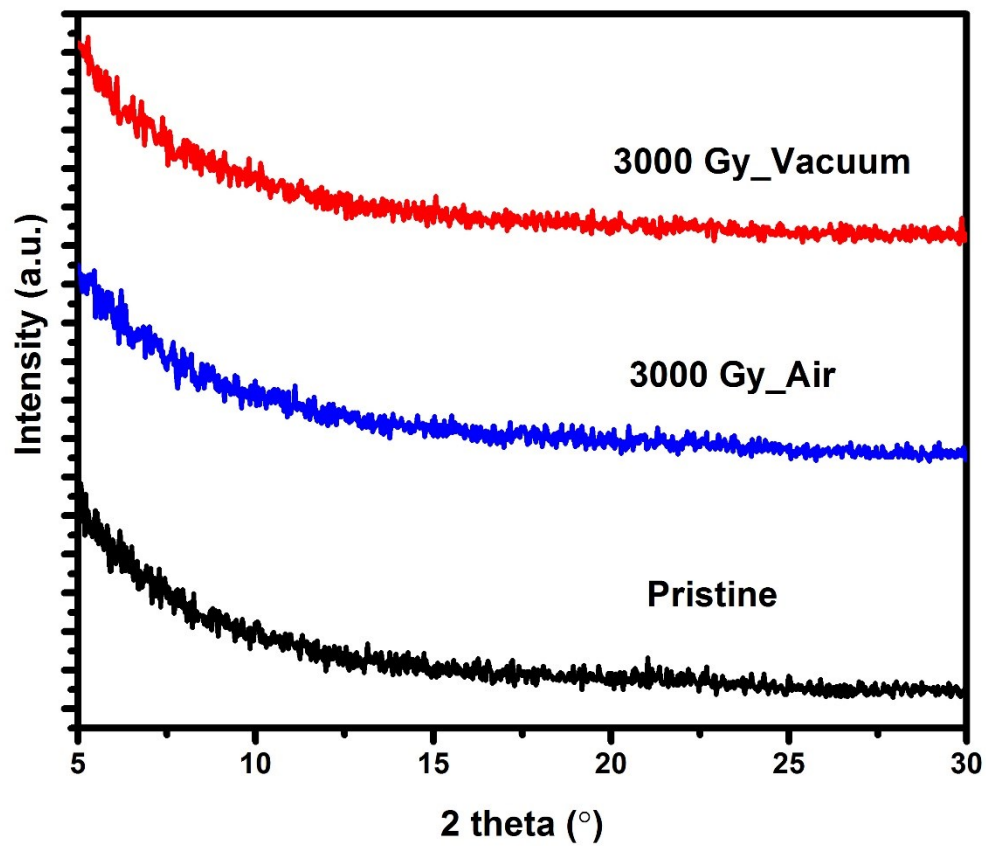


Figure S2. XRD of pristine and 3000 Gy gamma-irradiated PEDOT: PSS films in air and vacuum environment.

Atomic Force Microscopy (AFM)

AFM was performed by tapping mode across $10\ \mu\text{m} \times 10\ \mu\text{m}$ at various positions for pristine and irradiated samples at air and vacuum environments. **Figure S3** revealed no significant difference in the morphology of the samples before and after irradiation.

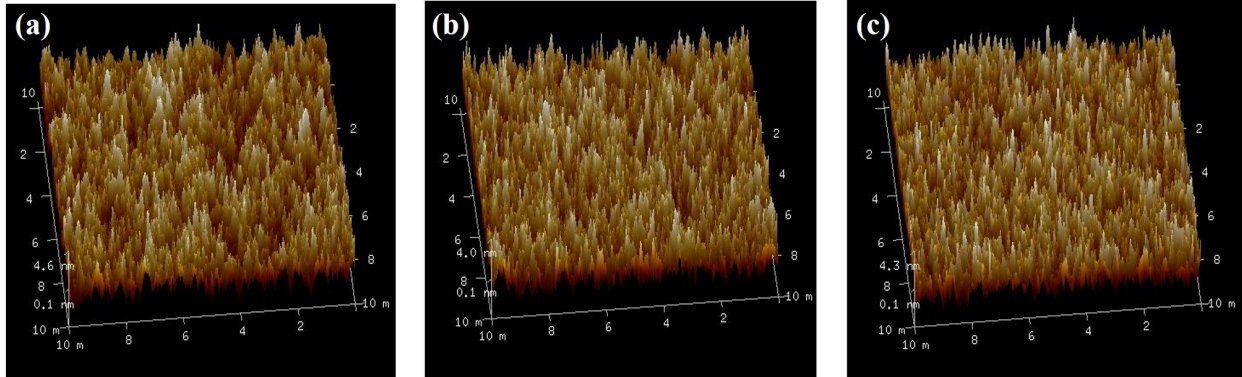


Figure S3. AFM topographies ($10\ \mu\text{m} \times 10\ \mu\text{m}$) of: (a) Pristine and 3000 Gy irradiated PEDOT:PSS films: (b) in air and (c) vacuum environment.