

# Polaron stability in semiconducting polymer neat films

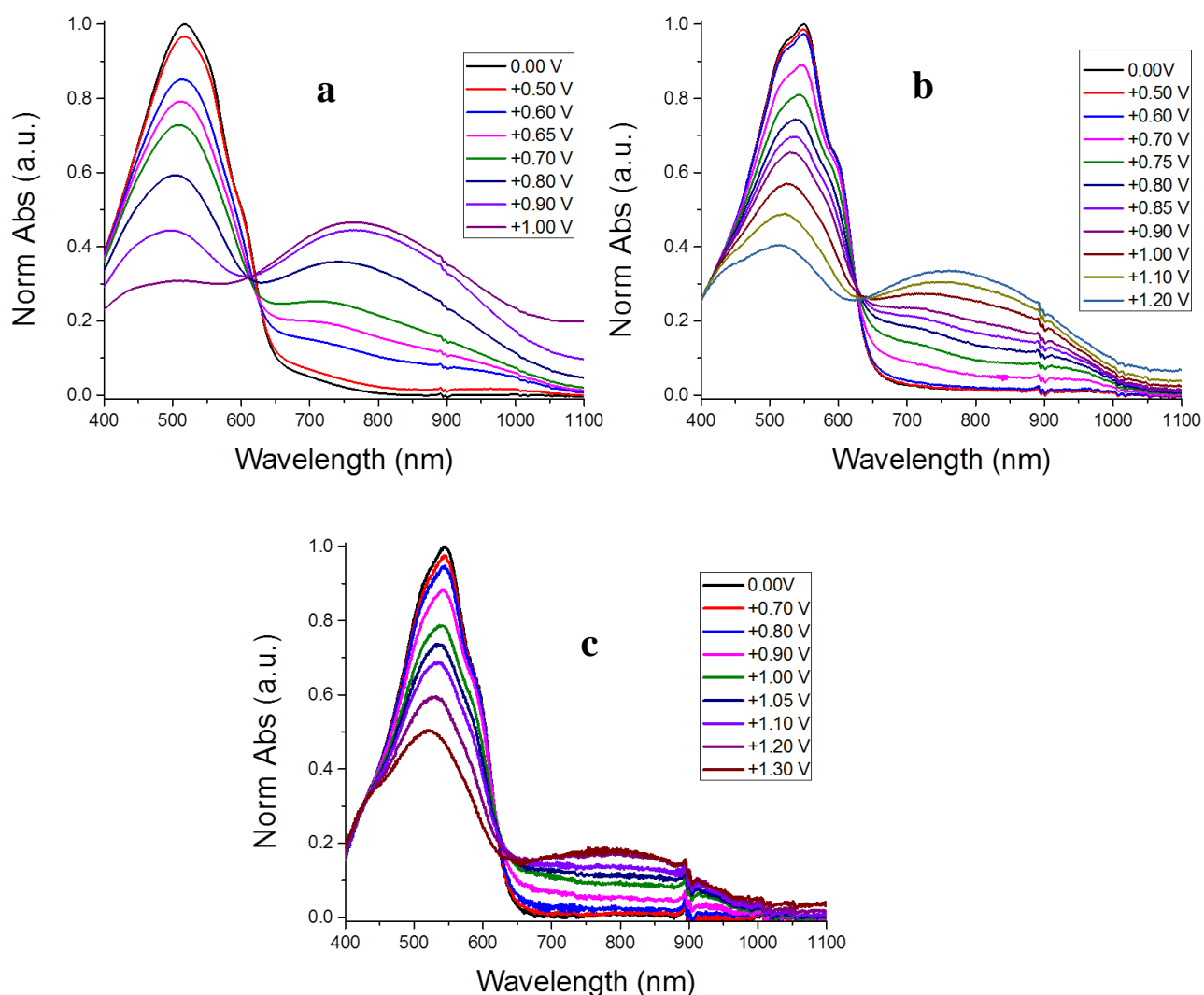


Fig. S1 – Spectroelectrochemical data for neat films of a) P3HT, b) PTTTz, and c) PTTz. Absorption spectra are measured as a function of potential applied to working electrode, with respect to Ag/AgCl reference electrode. Probing potentials are chosen for oxidative stress studies such that absorption intensity at the maximum absorption wavelength of the polymer decreases to 75% of its initial value, giving probing potentials of +0.65, +0.80, and + 1.05 V for P3HT, PTTTz, and PTTz, respectively.

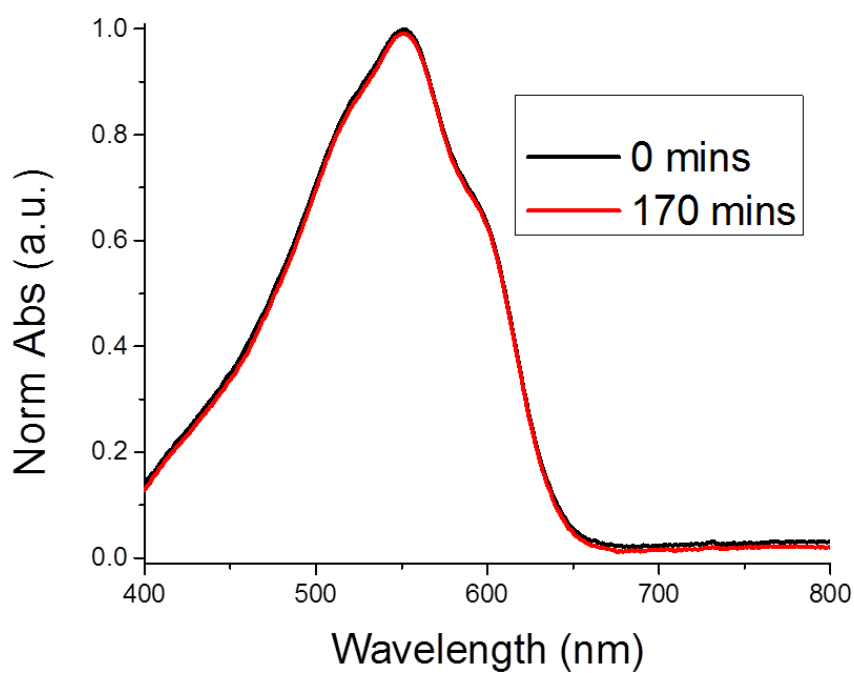


Fig. S2 – Absorption spectra of PTTz neat film before (black) and after (red) oxidative stress stage with a probing potential of 0.00 V vs Ag/AgCl reference electrode. Absorption profile is stable over timescale of experiment. Both spectra are measured in situ.

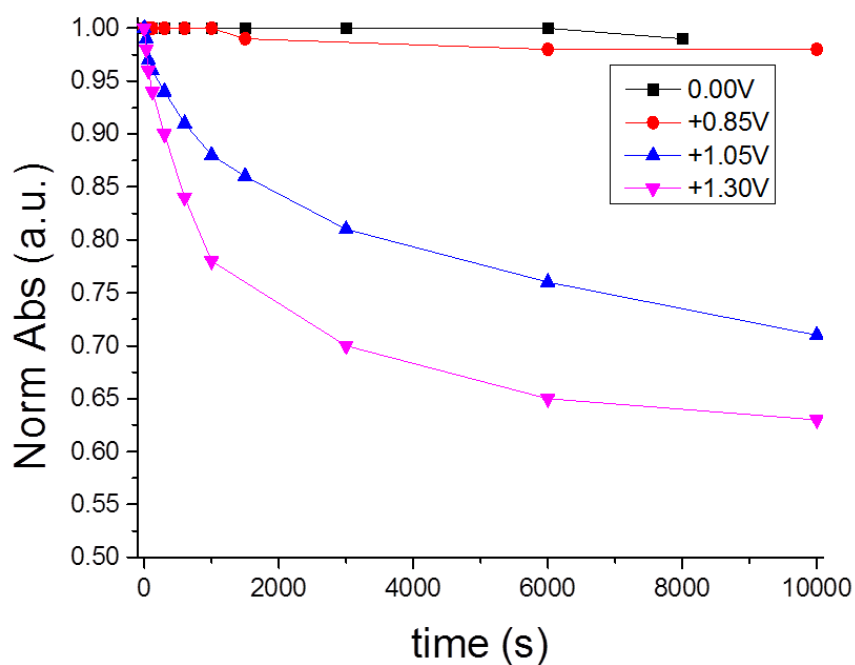


Fig. S3 – Normalised absorption at absorption maximum (542 nm) as a function of oxidative stress time. A range of probing potentials are compared, including 0.00 V (black), +0.85 V (red), +1.05 V (blue) and +1.30 V (magenta)

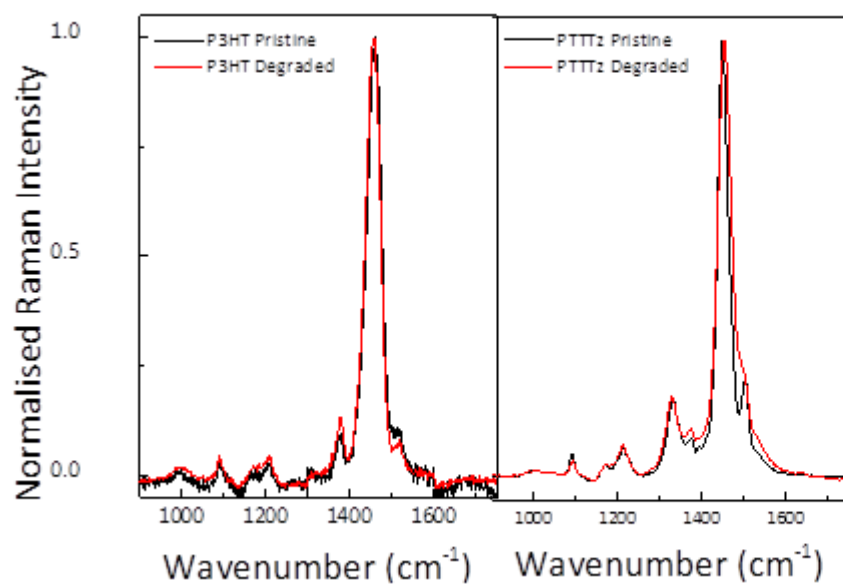


Fig. S4 – Background corrected and normalised Raman spectra of pristine (black) and degraded (red) neat films of P3HT (left) and PTTTz (right).