

Brief air heating of TiO₂/dye films, to 120 - 250 °C; the effect on resulting liquid junction Dye Sensitised Solar Cells (DSSCs) and melt-processed solid-state DSSCs

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Supplementary Information

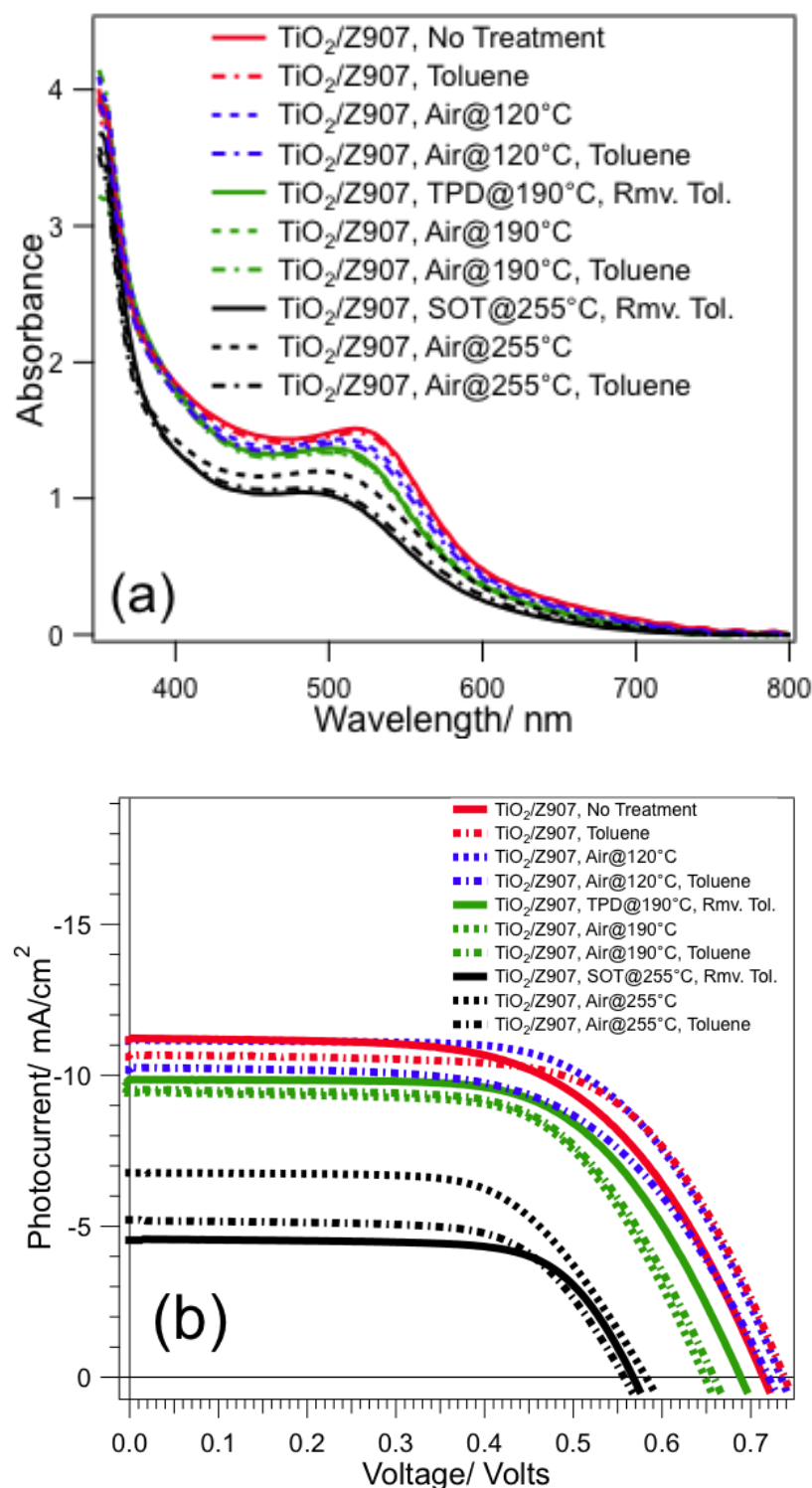


Fig. S1 (a) Absorption spectra of Z907-sensitised TiO₂ film (transparent, 7 μm) before and after different treatments as noted in legend. (b) One-sun current-voltage curves of liquid-state DSSCs fabricated with the same films. (electrolyte: 0.8 M PMII, 50 mM iodine, 50 mM GuSCN, 0.28 M TBP and 25 mM LiI in MPN; Rmv. Tol. indicates HTM Removed by Toluene)

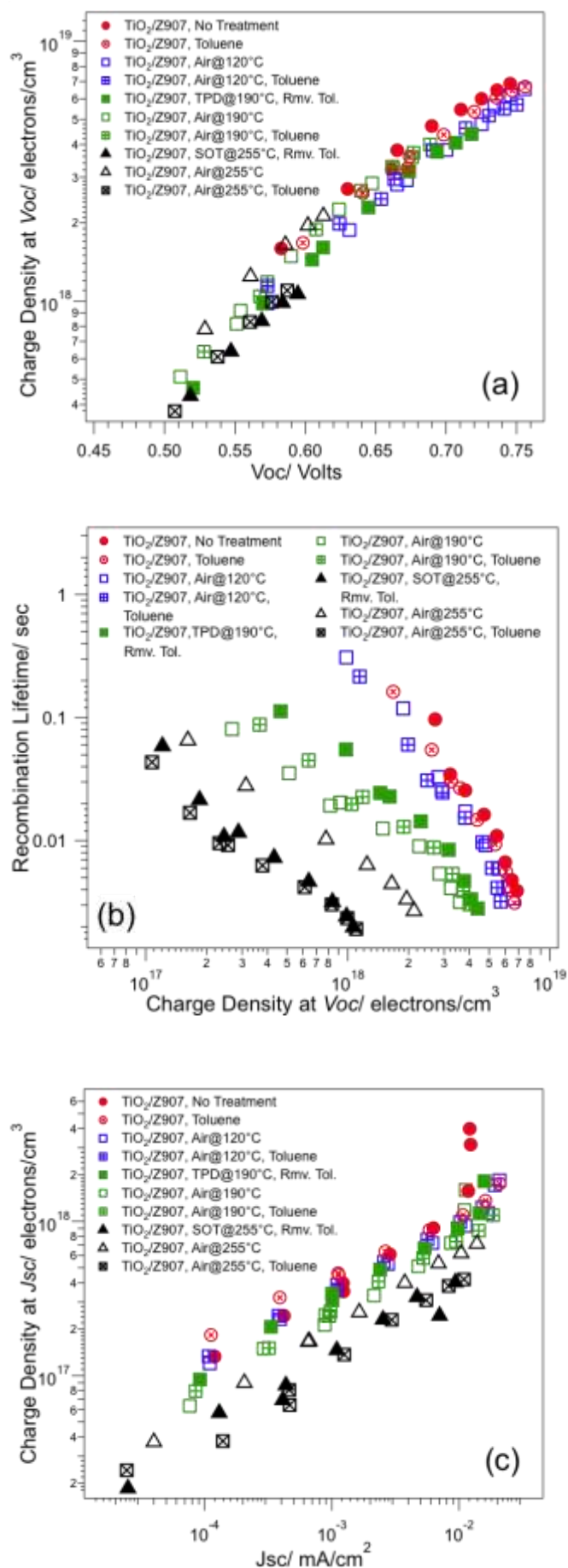


Fig. S2 (a) Recombination lifetime vs. charge density, (b) charge density vs. V_{oc} and (c) charge density vs. J_{sc} , of liquid-state DSSCs fabricated with Z907-sensitized TiO_2 film (transparent, 7 μm) with different treatments as noted in legend. (electrolyte: 0.8 M PMII, 50 mM iodine, 50 mM GuSCN, 0.28 M TBP and 25 mM LiI in MPN; Rmv. Tol. indicates HTM Removed by Toluene)

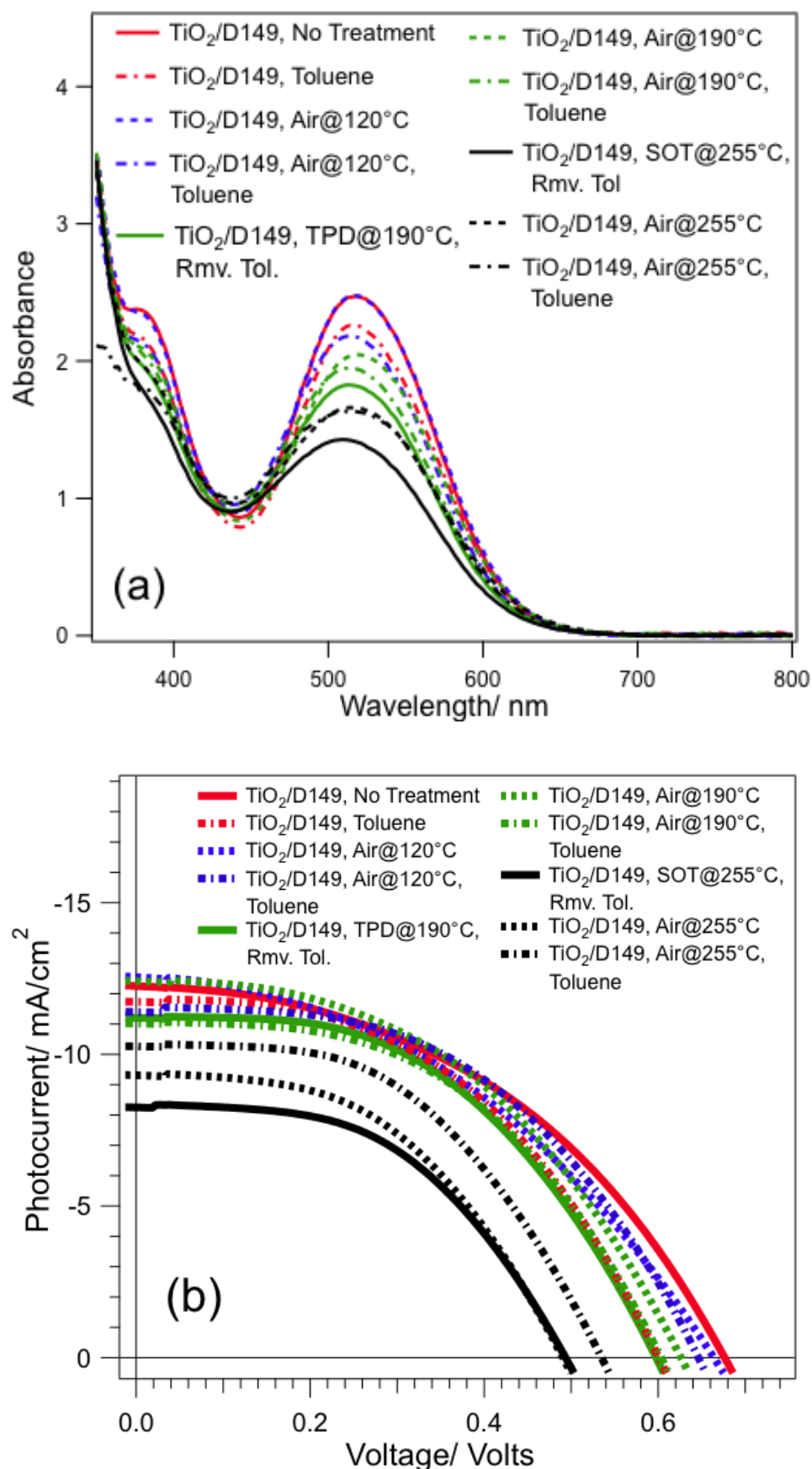


Fig. S3 (a) Absorption spectra of D149-sensitised TiO₂ film (transparent, 4.2 μ m) before and after different treatments as noted in legend. (b) One-sun current-voltage curves of liquid-state DSSCs fabricated with the same films. (electrolyte: 0.8 M NaI, 40 mM iodine and 0.2 M GuSCN in MPN; Rmv. Tol. indicates HTM Removed by Toluene)

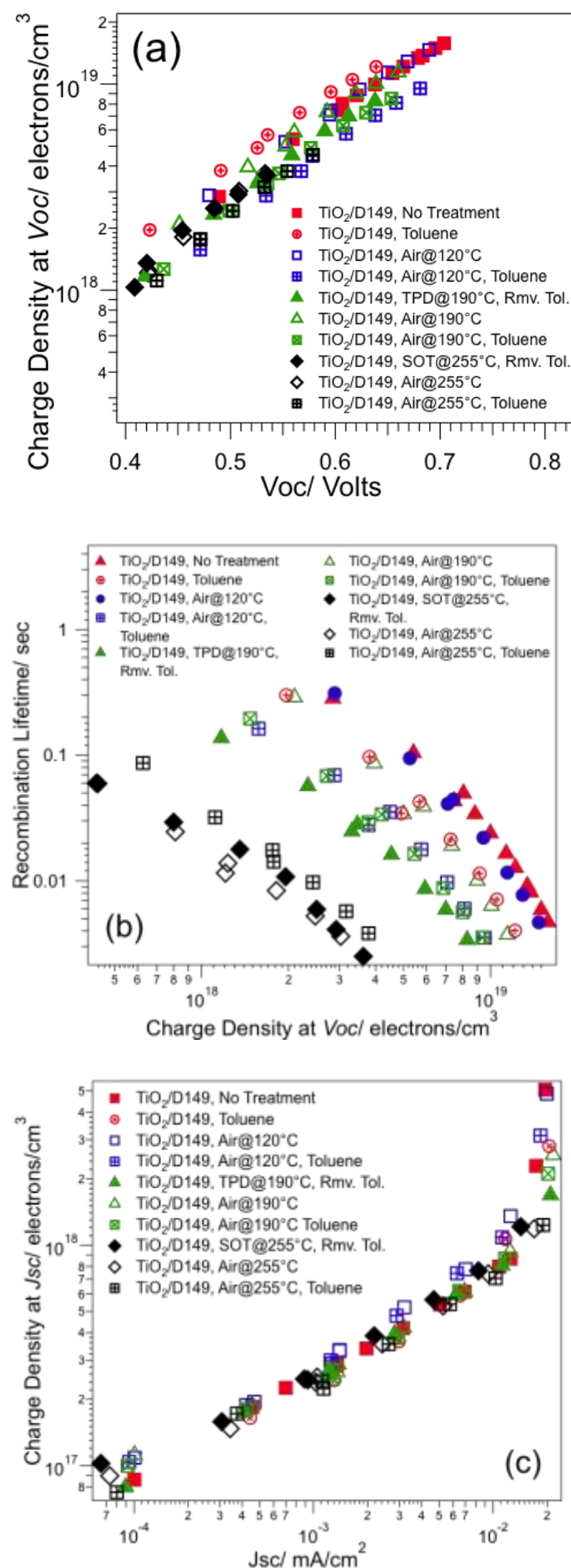


Fig. S4 (a) Recombination lifetime vs. charge density and (b) charge density vs. V_{oc} and (c) charge density vs. J_{sc} , of liquid-state DSSCs fabricated with D149-sensitized TiO_2 film (transparent, $4.2 \mu\text{m}$) with different treatments as noted in legend. (electrolyte: 0.8 M NaI, 40 mM iodine and 0.2 M GuSCN in MPN; Rmv. Tol. indicates HTM Removed by Toluene)

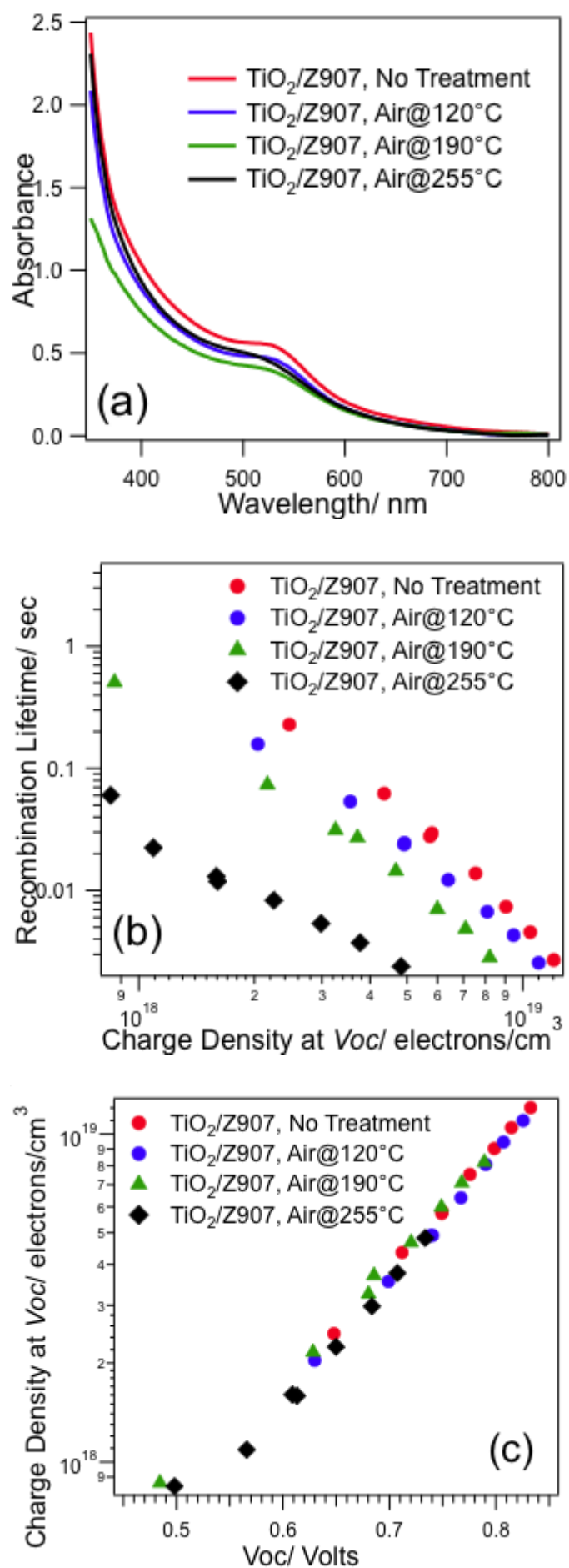


Fig. S5 (a) Absorption spectra of Z907-sensitized TiO_2 film (transparent, 1.3 μm) with different treatments as noted in legend. (b) Recombination lifetime vs. charge density and (c) charge density vs. V_{oc} , of liquid-state DSSCs fabricated with the same films. (electrolyte: 0.8 M PMII, 50 mM iodine, 50 mM GuSCN, 0.3 M benzimidazole in MPN)

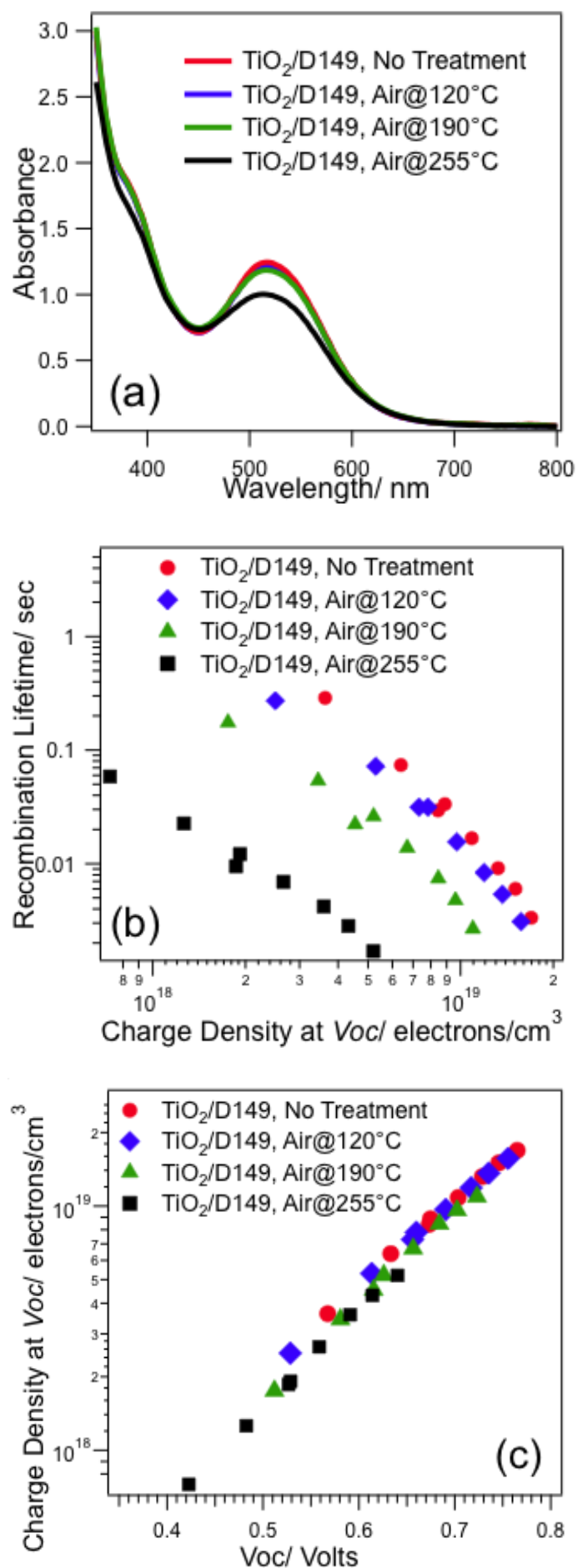


Fig. S6 (a) Absorption spectra of D149-sensitised TiO_2 film (transparent, 2.2 μm) with different treatments as noted in legend. (b) Recombination lifetime vs. charge density and (c) charge density vs. V_{oc} , of liquid-state DSSCs fabricated with the same films. (electrolyte: 0.8 M NaI, 40 mM iodine and 0.2 M GuSCN in MPN)