Supplementary information

Effects of ZnO Film Growth Route and Nanostructure on Electron Transport and Recombination in Dye-Sensitized Solar Cells.

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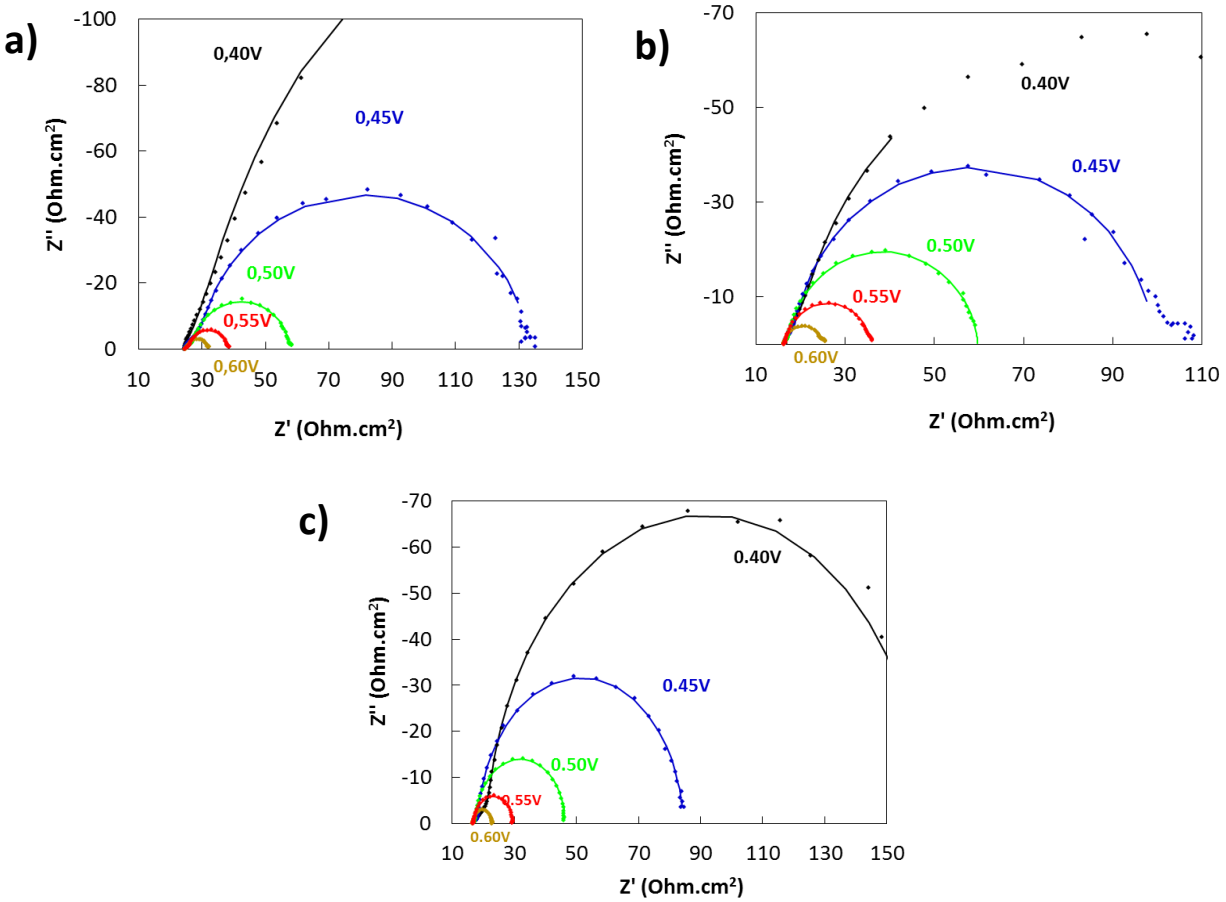

Fig. S1 : Nyquist plots of the cell voltage effects on the impedance spectra recorded in the light for the three investigated ZnO solar cells (a) ED1; (b) ED2 and (c) NP. The full lines are the fits of the spectra.

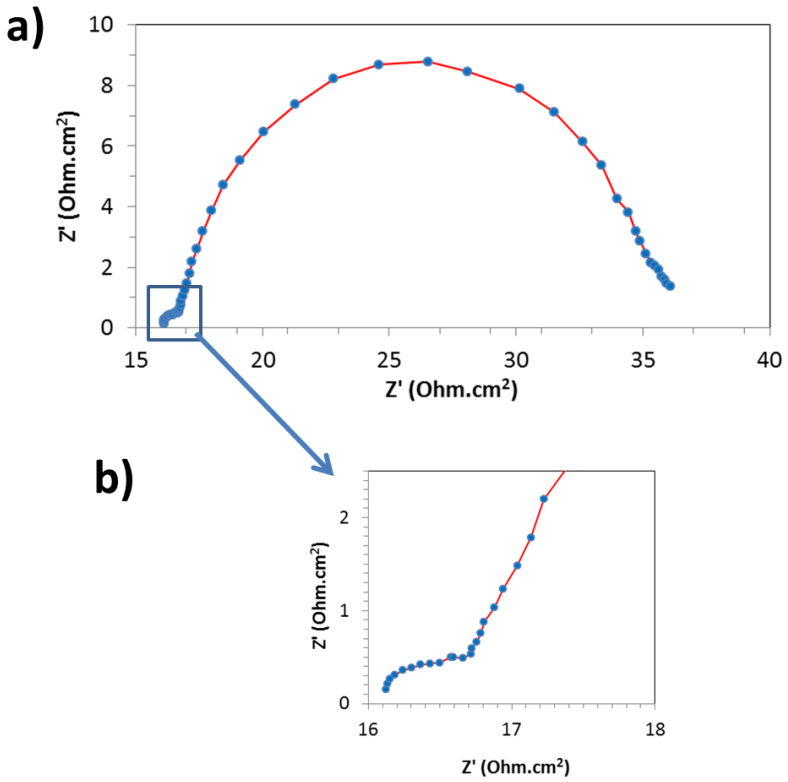

Fig. S2 : (a-c) Nyquist plot of the impedance spectrum of ED2 cell measured under illumination at an applied voltage of 0.55V. (b) is a high frequency zoom view of (a), showing the counter-electrode contribution.

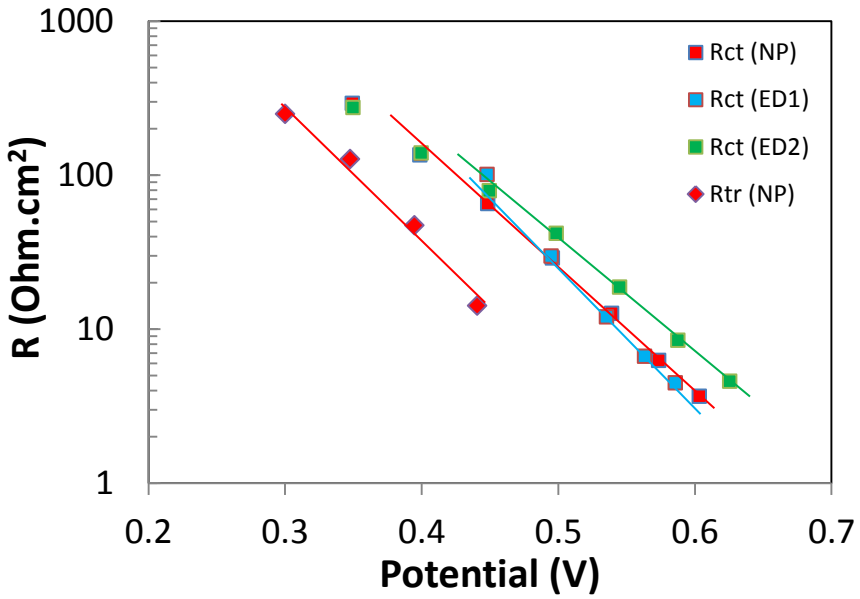

Fig. S3 : R_{ct} and R_{tr} of D149/ZnO cells measured under light (100 mW.cm^{-2}, AM1.5G) versus the corrected applied potential.

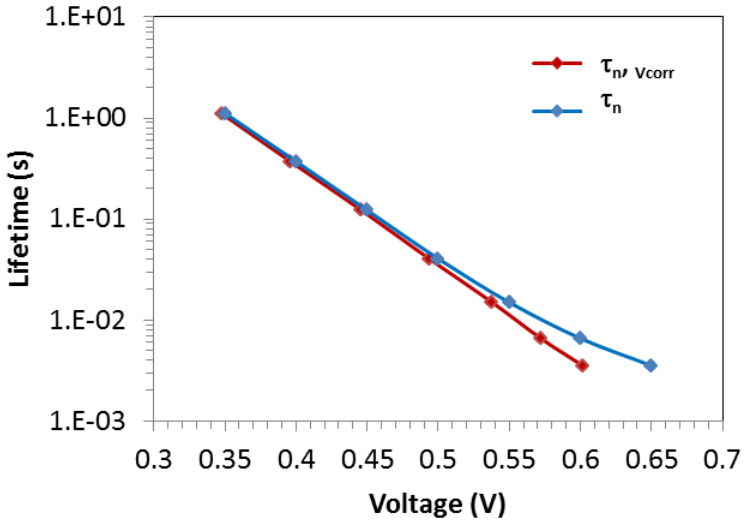

Fig. S4: Electron lifetimes measured by EIS in the dark for the NP-ZnO cell versus applied voltage. The blue line is the raw data and the red line is obtained after ohmic drop correction.

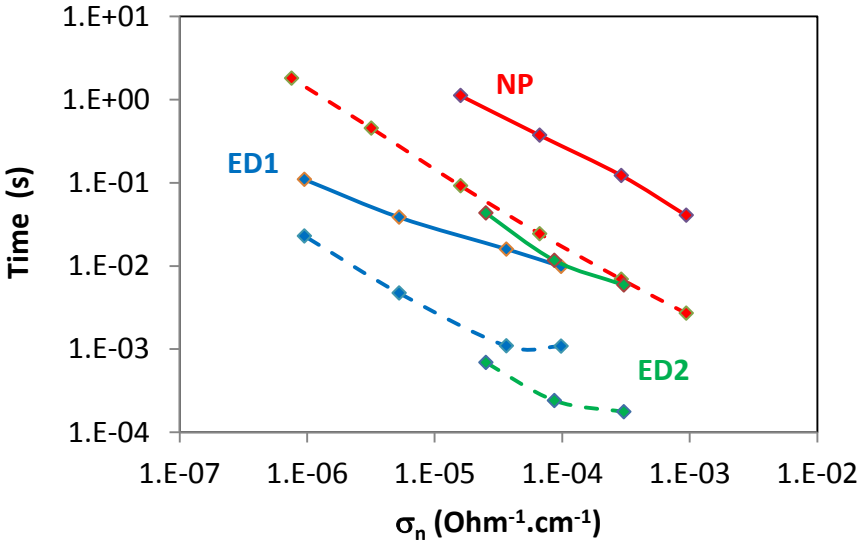

Fig.S5 : Lifetimes (τ_n) (full line) and transport times (τ_d) (dashed line) in the dark as a function of the conductivity.

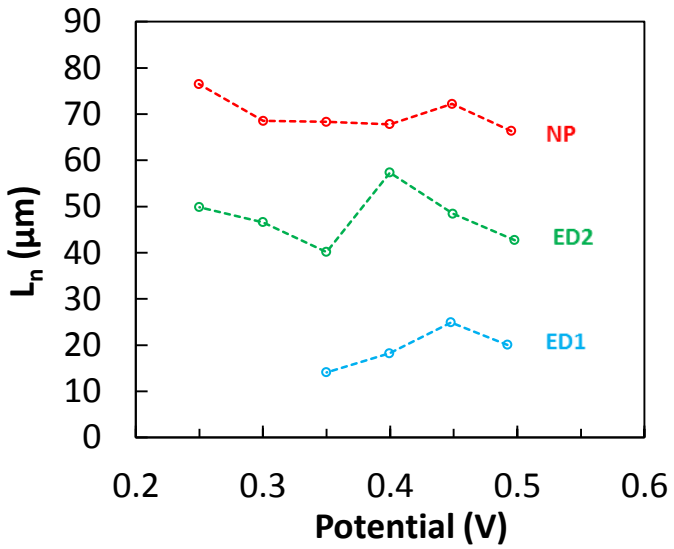

Fig. S6: Diffusion length of the electron (L_n) in the ZnO photoelectrodes measured in the dark as a function of the applied voltage corrected of the ohmic drop.