Supporting information for: Temperature Dependence of Transport-Properties of Spiro-MeOTAD as a Hole Transport Material in Solid-State Dye-Sensitized Solar Cells

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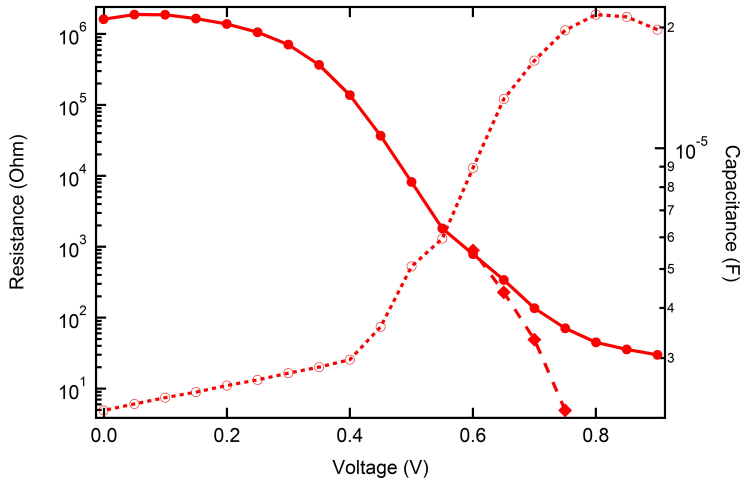
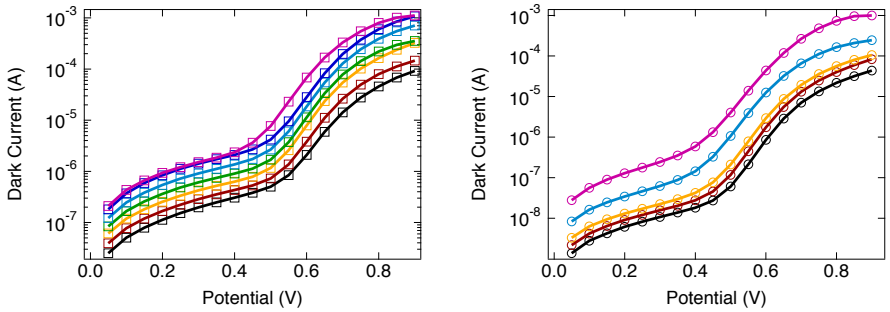
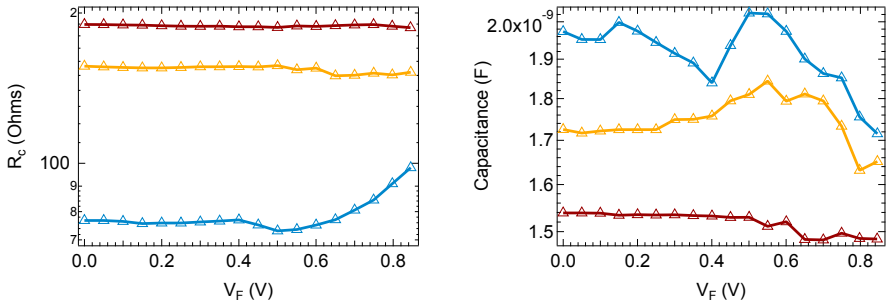


Figure 1: Transport resistance, R_t, extracted using the transmission line model (dashed solid diamonds). This feature is often only visible at one or two potentials and thus the error associated with R_t is large. The recombination resistance R_{ct} (solid circles) and the associated capacitance (open circles) are also shown. These measurements correspond to a mesoporous TiO_2 sample with undoped spiro-MeOTAD conducted at 60°C

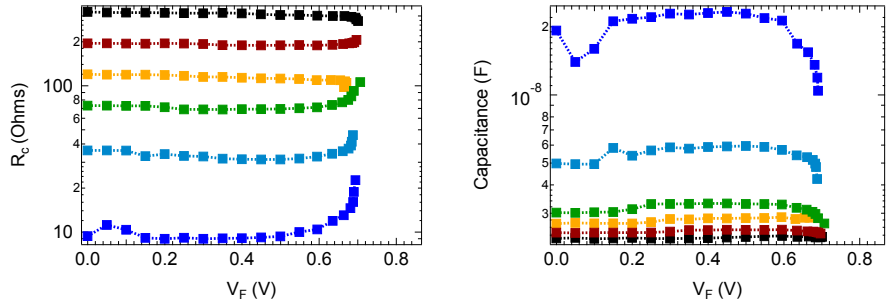


Mesoporous ZrO_2 Mesoporous TiO_2

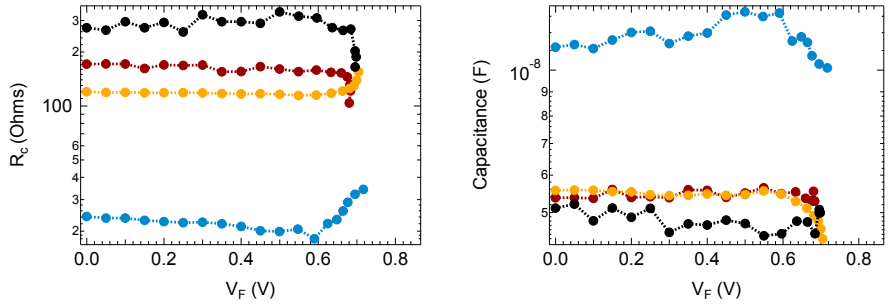
Figure 2: Dark Current measured during the EIS measurements for mesoporous ZrO_2 and TiO_2 with undoped spiro-MeOTAD. Measurement temperatures: black (0°C), red (10°C), orange (20°C), green (30°C), light blue (40°C), dark blue (50°C), magenta (60°C)



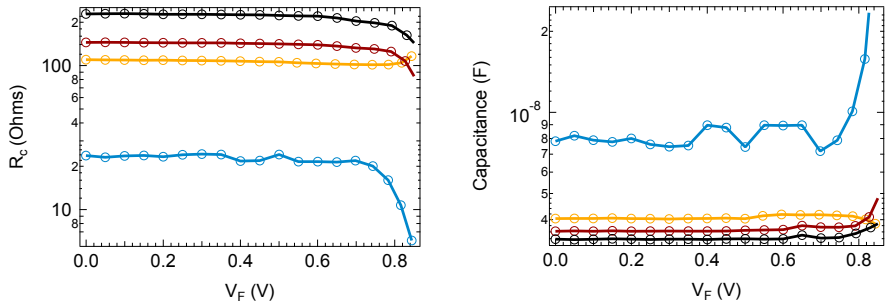
Flat TiO_2 with doped spiro-MeOTAD



Mesoporous ZrO_2 with undoped spiro-MeOTAD



Mesoporous TiO_2 with undoped spiro-MeOTAD



Mesoporous TiO_2 with doped spiro-MeOTAD

Figure 3: The charge transfer resistance and the corresponding capacitance at the BC/HTM interface for the different systems as a function of the corrected potential. Measurement temperatures: black (0°C), red (10°C), orange (20°C), green (30°C), light blue (40°C), dark blue (50°C).

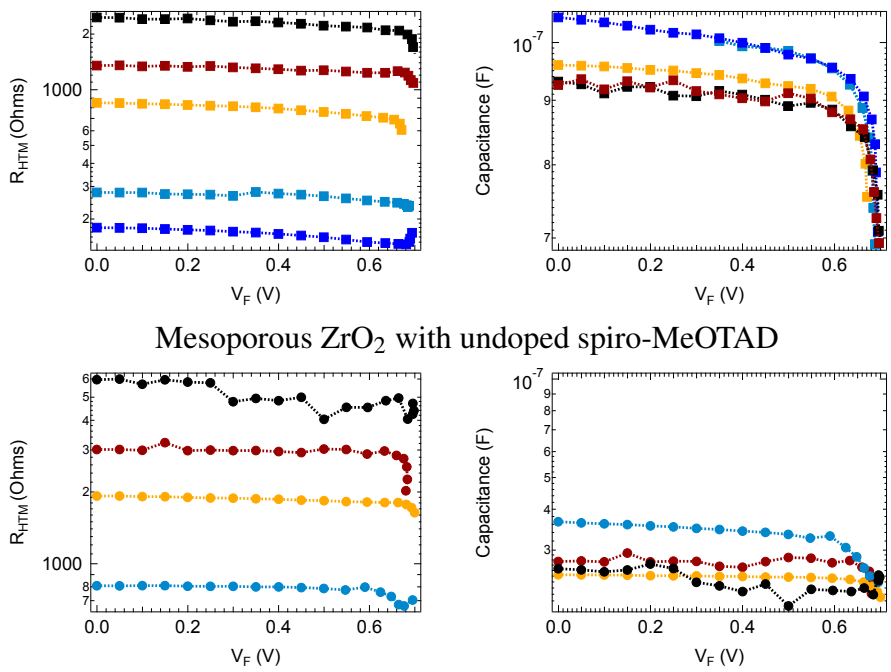


Figure 4: The charge transport resistance, R_{HTM} and capacitance of the HTM for mesoporous ZrO_2 and TiO_2 as a function of the corrected potential. Measurement temperatures: black (0°C), red (10°C), orange (20°C), light blue (40°C), dark blue (50°C).

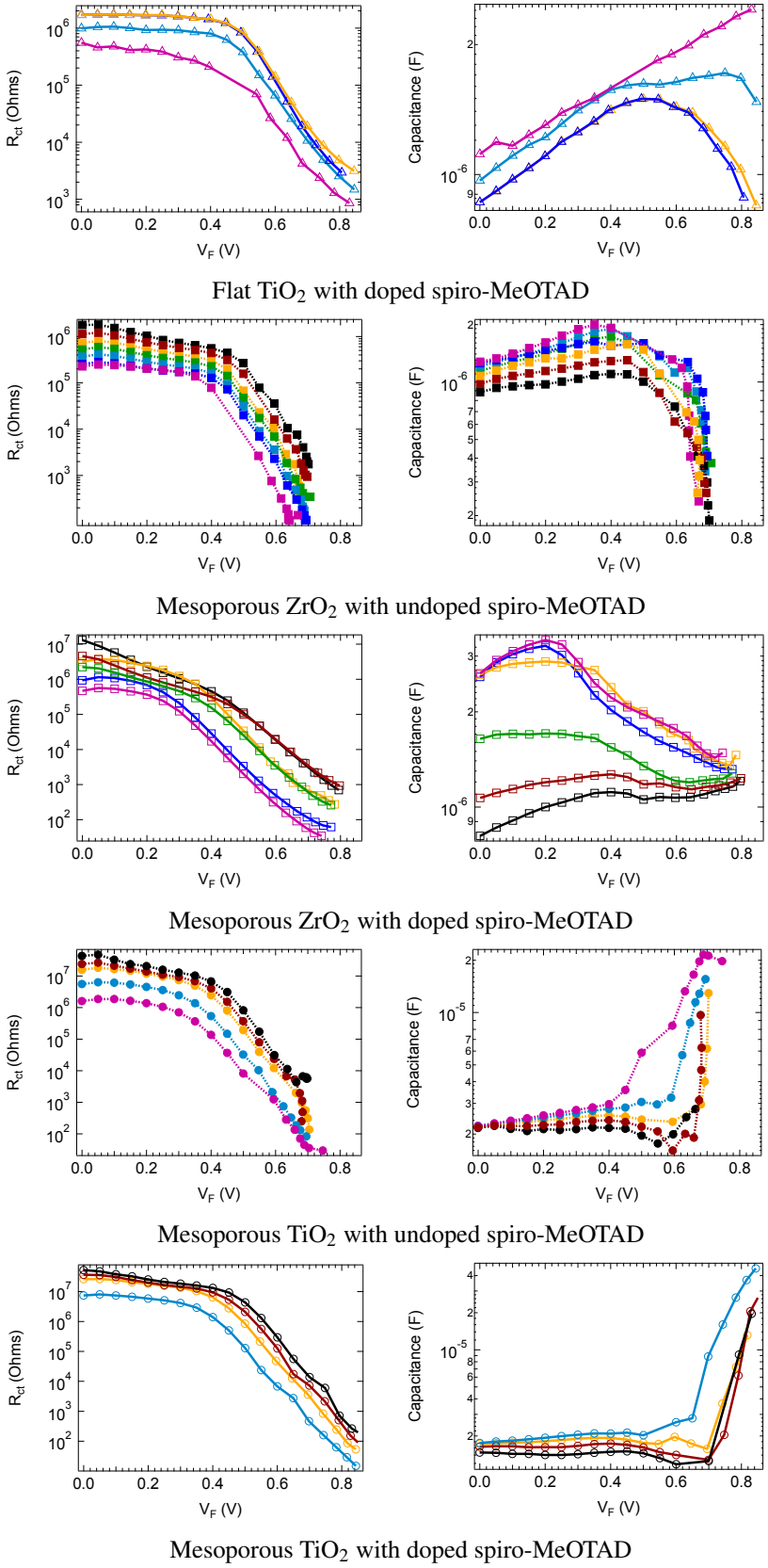


Figure 5: The recombination resistance and the corresponding capacitance for the different systems as a function of the corrected potential. Measurement temperatures: black (0°C), red (10°C), orange (20°C), green (30°C), light blue (40°C), dark blue (50°C), magenta (60°C).