

Figure S3 Tauc Plots and calculated band gaps of the spin coated 0.1 wt% TiO₂ catalysts

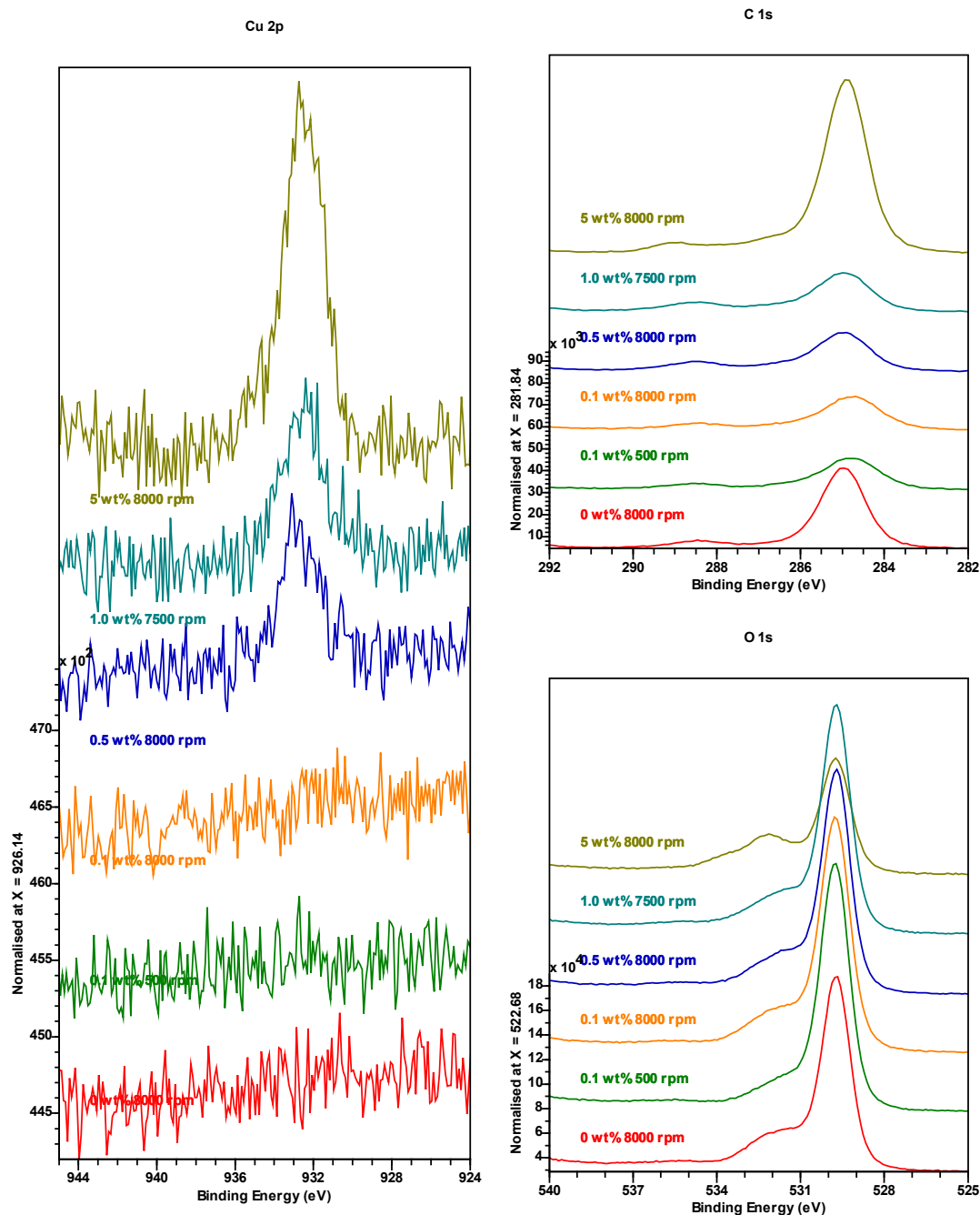


Figure S4 Photoelectron spectra of the Cu doped TiO_2 catalysts deposited at different spin speeds and with different wt% of Cu.

Figure S 4 shows that even for the highest copper concentrations studied the satellite and Auger peaks are not strong enough to be observed against the background and cannot therefore be used to assign oxidation state.

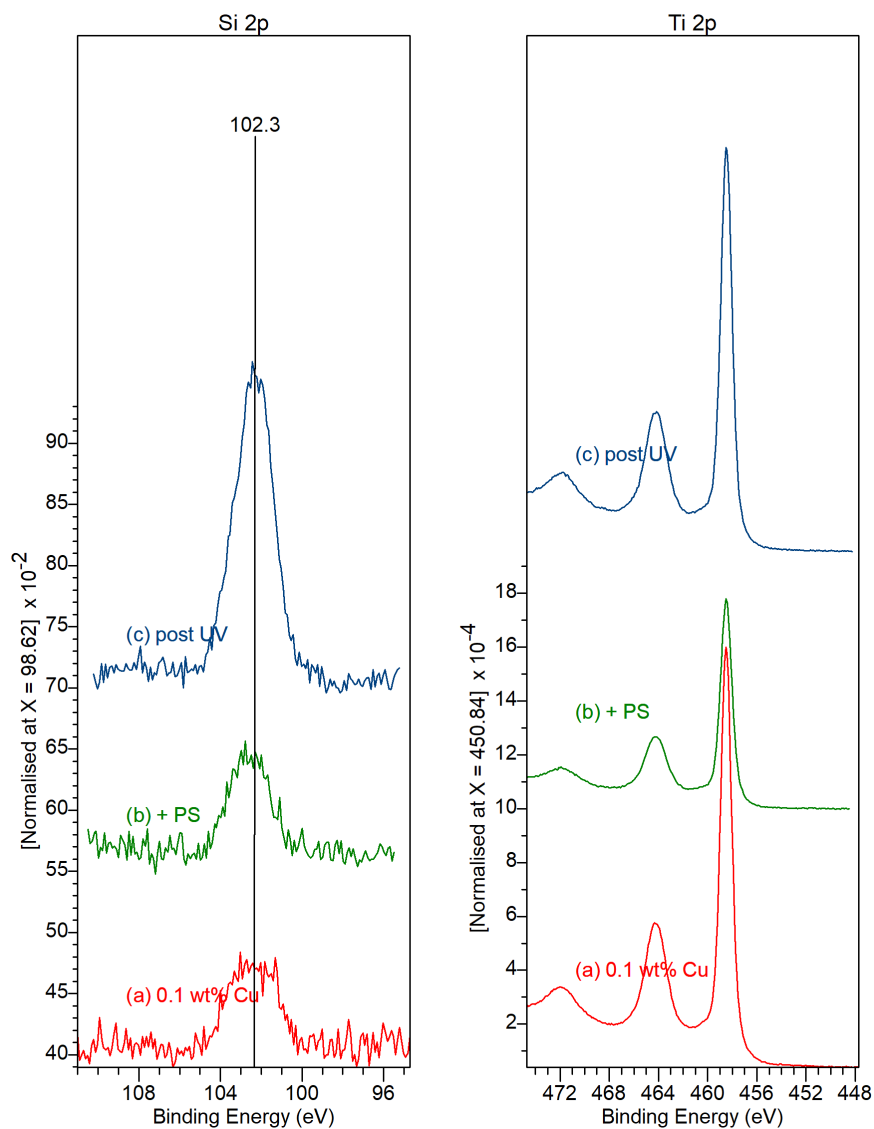


Figure S5 Further photoelectron spectra of the 0.1 wt% Cu doped TiO_2 catalysts comparing the clean film with the polystyrene coated film before and after photocatalysis.

Figure S 5 shows additional XP spectra that show the consistent 4+ state of the Ti2p peaks. Deposition of the PS film strongly reduces the intensity of the substrate which is then recovered when the PS is oxidised away. The Si2p arises from the glass substrate.

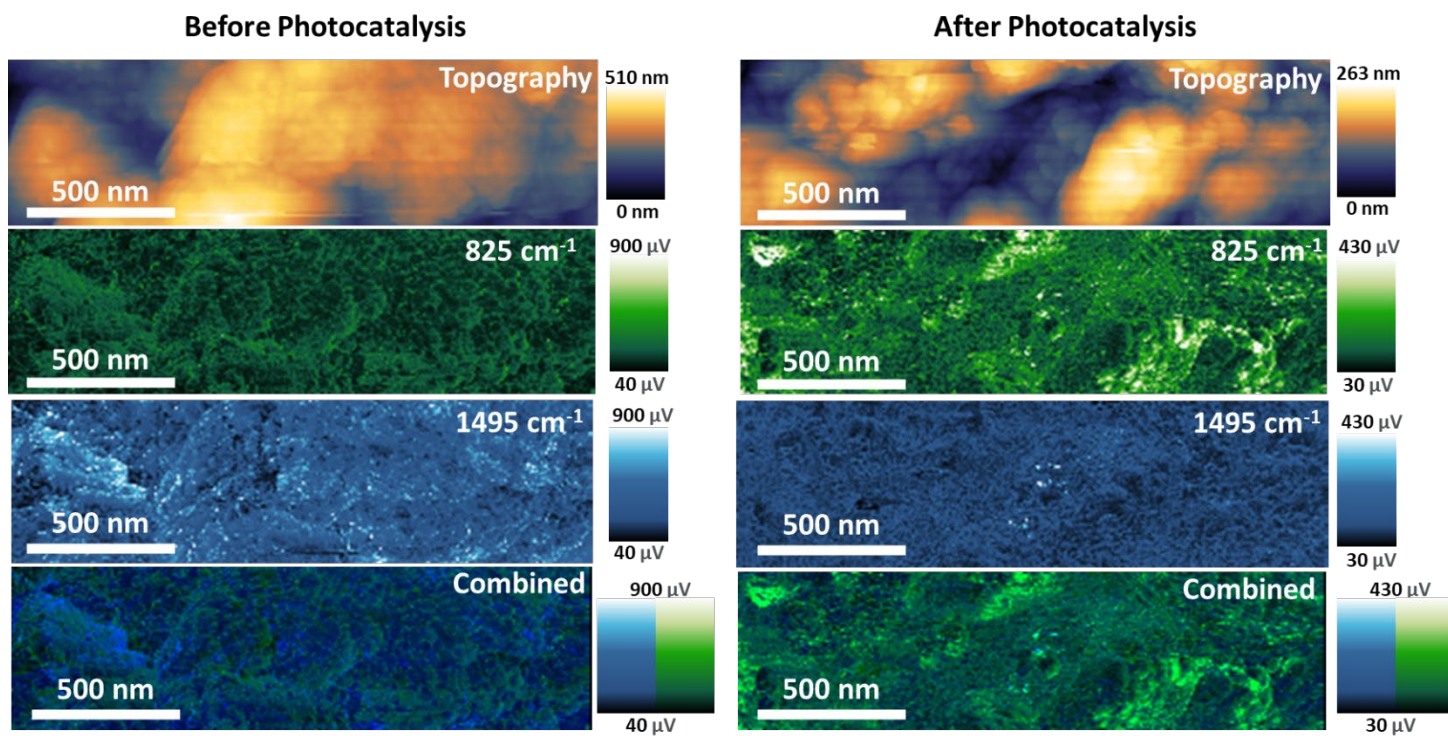


Figure S6: PiFM micrographs of 0.1 wt% Cu doped TiO_2 treated with polystyrene before and after photocatalytic treatment. Green shows 1495 cm^{-1} polystyrene signal, Blue shows 825 cm^{-1} TiO_2 stretch.