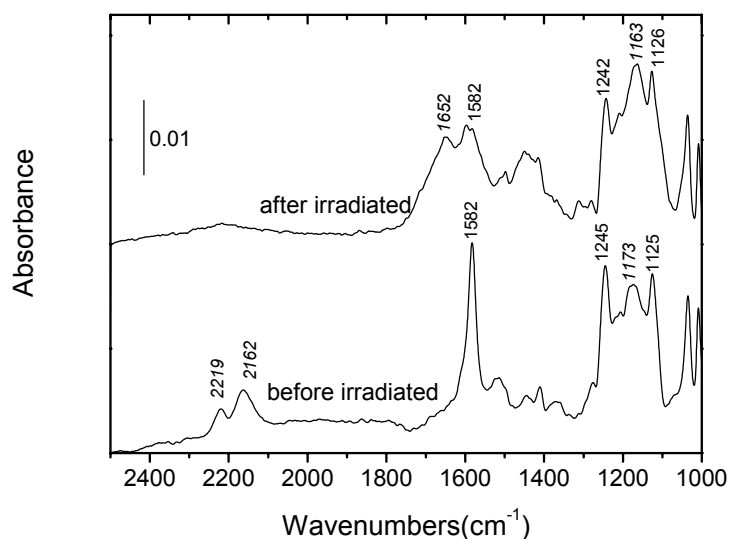


## Supplementary information

1



### IR-ERS spectra of 8 deposition cycles of DR and PSS-coated ZrO<sub>2</sub> on silicon wafer (Bruker IFS 66v)

Two apparent adsorption peaks at 2219cm<sup>-1</sup> and 2162cm<sup>-1</sup> were derived from the vibration of -N≡N<sup>+</sup> group of diazo-resin before UV irradiation. After UV irradiation, diazonium group decomposes and the two peaks disappear. Another two adsorption peaks at 1582cm<sup>-1</sup> and 1173cm<sup>-1</sup> attributed to the vibration of -C=C- of phenyl and diazonium group complex with sulfonate group respectively shifted from 1582cm<sup>-1</sup> to 1652cm<sup>-1</sup> and from 1173cm<sup>-1</sup> to 1163cm<sup>-1</sup>, indicating clearly the form of crosslink structure between DR and PSS-coated ZrO<sub>2</sub><sup>1</sup>.

### Reference

1 J.Q. Sun, Z.Q. Wang, L.X. Wu, X. Zhang, J.C. Shen, S. Gao, L.F. Chi and H. Fuchs, *Macromol. Chem. Phys.*, 2001, **202**, 967