

New Journal of Chemistry

Supporting Information

Sol-Gel Process Activated by Visible Light-Emitting Diodes (LEDs) for Synthesis of Inorganic Films

Suqing Shi,^{a,b} Xavier Allonas,^a Céline Croutxé-Barghorn^{*a} and Abraham Chemtob^a

^aLaboratory of Macromolecular Photochemistry and Engineering, University of Haute-Alsace, 3 rue Alfred Werner, 68093 Mulhouse Cedex, France. Fax: +33(0)389335014; Tel: +33(0)389335017; Email: celine.croutxe-barghorn@uha.fr (C. Croutxé-barghorn)

^bKey Laboratory of Synthetic and Natural Functional Molecule Chemistry of Ministry of Education and College of Chemistry & Material Science, Northwest University, Xuefu Ave., Guodu, Chang'an District, Xi'an 710127, PR. China. Fax: +86(0) 29 81535026; Tel: +86 29 81535032; Email: shisq@nwu.edu.cn (S. Shi)

30/04/2015

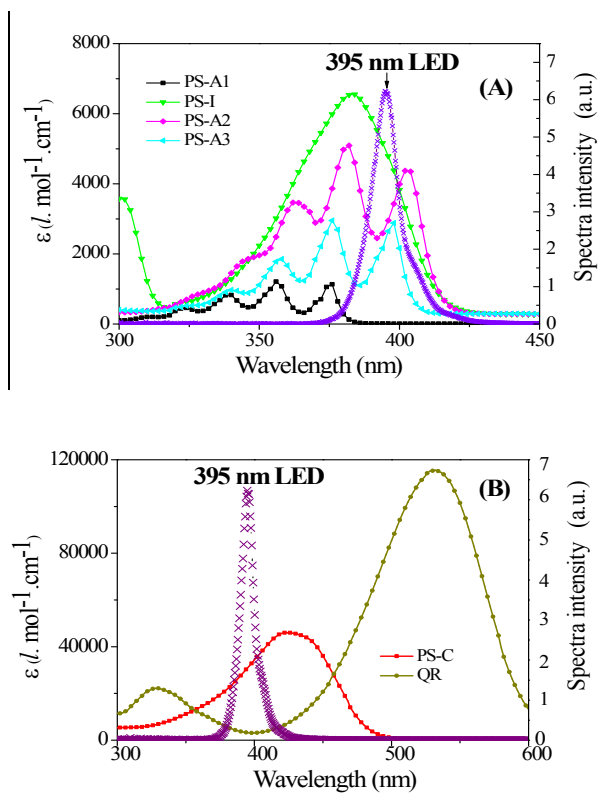
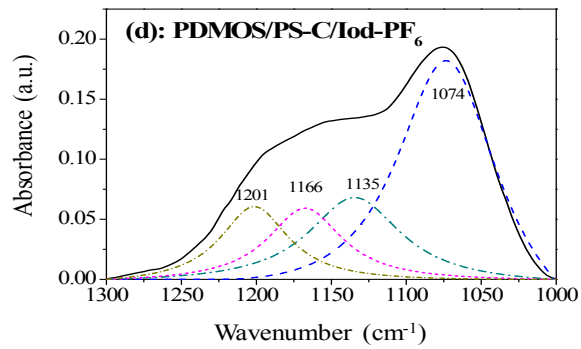
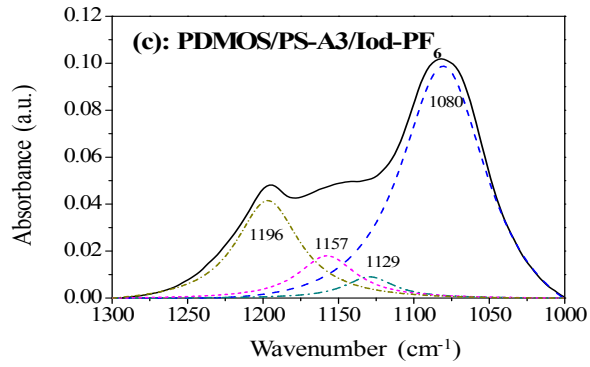
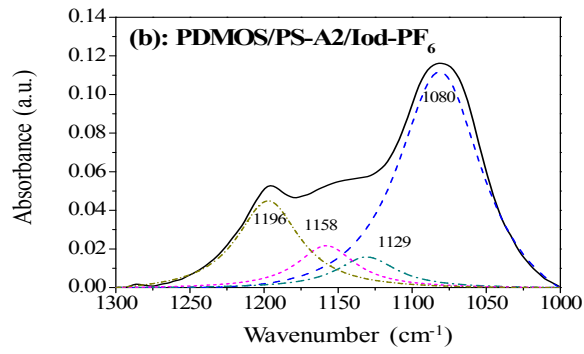
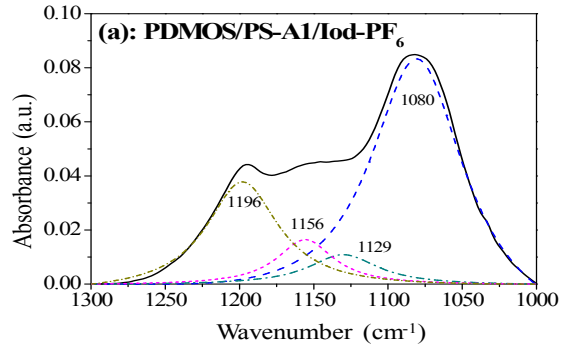


Fig.S1. Molar absorption coefficient of the photosensitizers and quinaldine red in methanol and the emission spectrum of 395 nm LED. (A) Absorption of PS-A1-3 and PS-I, (B) Absorption of PS-C and quinaldine red



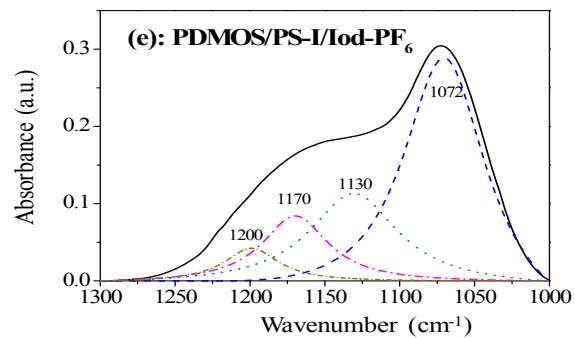


Fig.S2 Deconvolution of the Si-O-Si stretching band of cured PDMOS films photocatalyzed by PS-A1/Iod-PF₆ (a), PS-A2/Iod-PF₆ (b), PS-A3/Iod-PF₆ (c), PS-C/Iod-PF₆ (d) and PS-I/Iod-PF₆ (e). [PS]=0.4 mol%, [Iod-PF₆]=0.15 mol%, light intensity =20 mW/cm², irradiation time = 100s.

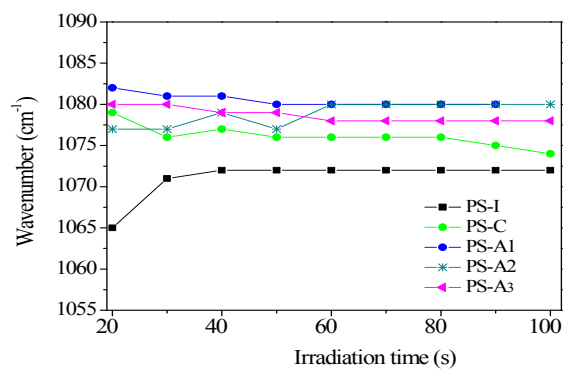


Fig.S3. Evolution of the $\nu_{as}(\text{Si-O-Si})$ vibrational frequencies at $\sim 1070\text{-}1080\text{ cm}^{-1}$ of PDMOS as a function of irradiation. $[\text{PS}]=0.4\text{ mol}\%$, $[\text{Iod-PF}_6]=0.15\text{ mol}\%$, light intensity $=20\text{ mW/cm}^2$.

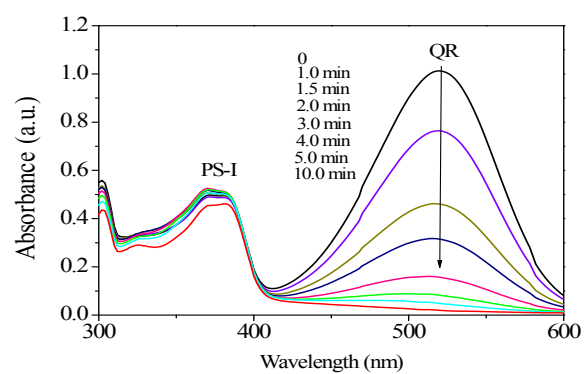


Fig.S4. UV spectra changes of 0.06 mM PS-I with 0.03 mM Iod-PF₆ on irradiation from 395 nm LED under air atmosphere in acetonitrile. Light intensity= 40 mW/cm²