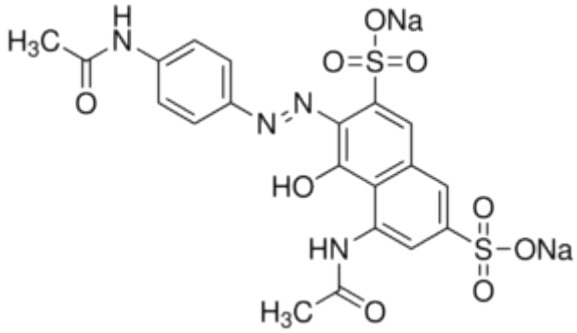
Electronic Supplementary Material (ESI) for RSC Advances.

Facile hydrothermal synthesis of a highly efficient solar active Pr_6O_{11}-ZnO Photocatalyst and its multiple applications

Subramanian Balachandran, Kuppulingam Thirumalai and Meenakshisundaram Swaminathan*

Department of Chemistry, Annamalai University, Annamalainagar 608 002, India.



Acid Violet 7($C_{20}H_{16}N_4Na_2O_9S_2$)

Fig. S1 Azo dye structure

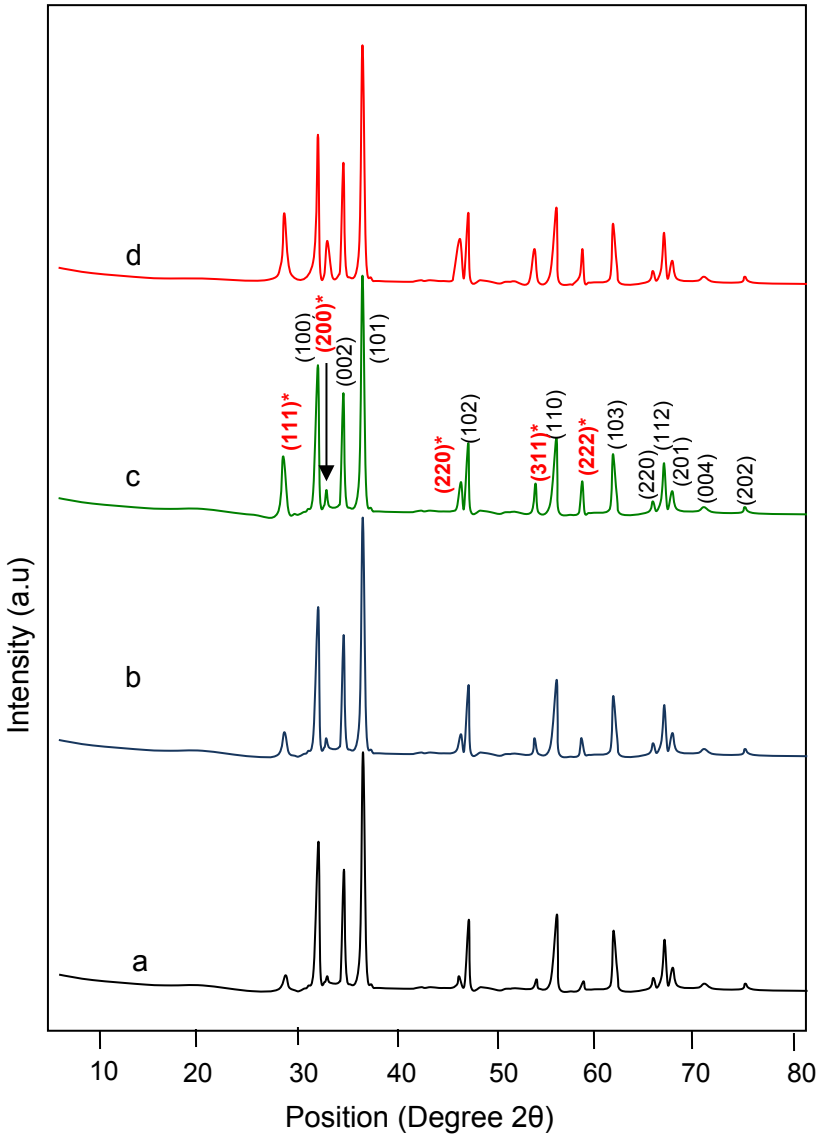


Fig. S2 XRD pattern (a) 3wt% Pr_6O_{11}−ZnO, (b) 6wt% Pr_6O_{11}−ZnO , (c) 9wt% Pr_6O_{11}−ZnO and (d) 12wt% Pr_6O_{11}−ZnO

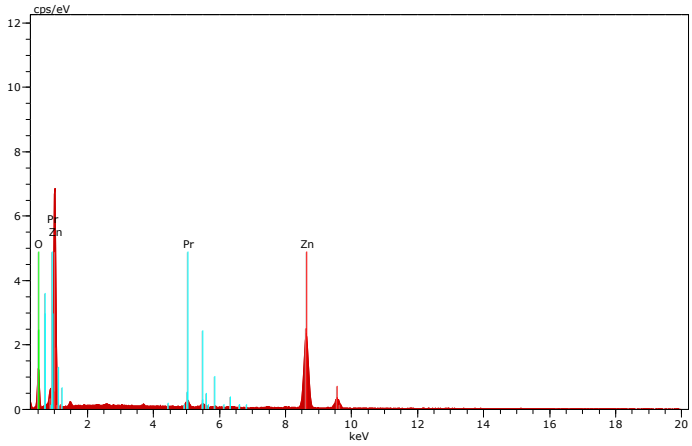


Fig. S3 EDS spectra of Pr_6O_{11}-ZnO

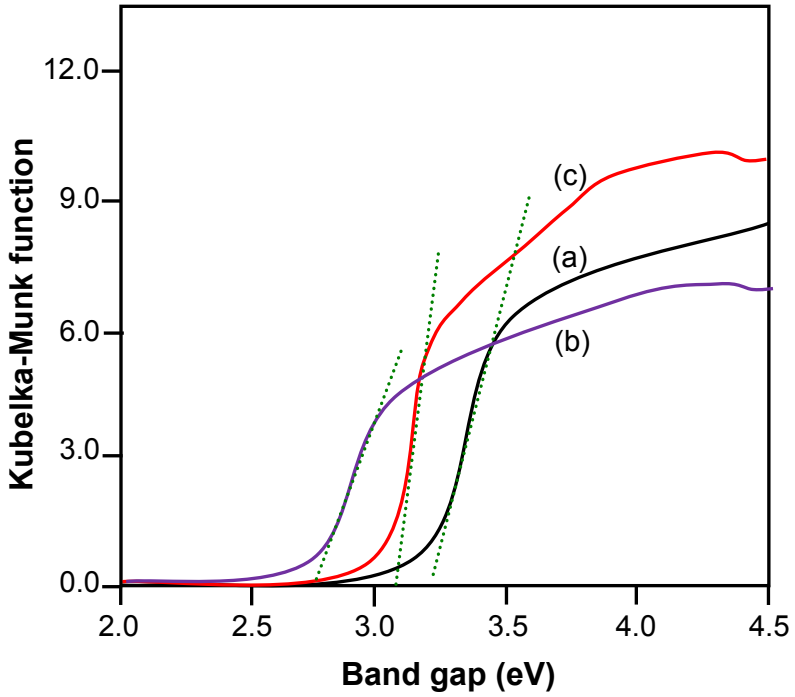


Fig. S4 Kubelka-Munk function (a) Prepared ZnO, (b) Pr_6O_{11} and (c) Pr_6O_{11}-ZnO

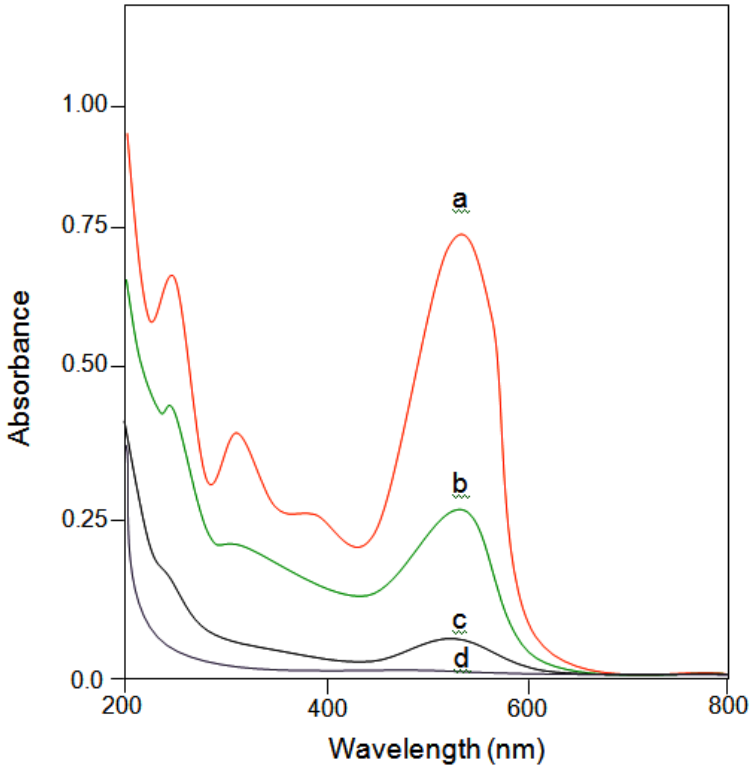


Fig. S5 UV spectral changes of AV 7 at different irradiation times with Pr_6O_{11}-ZnO

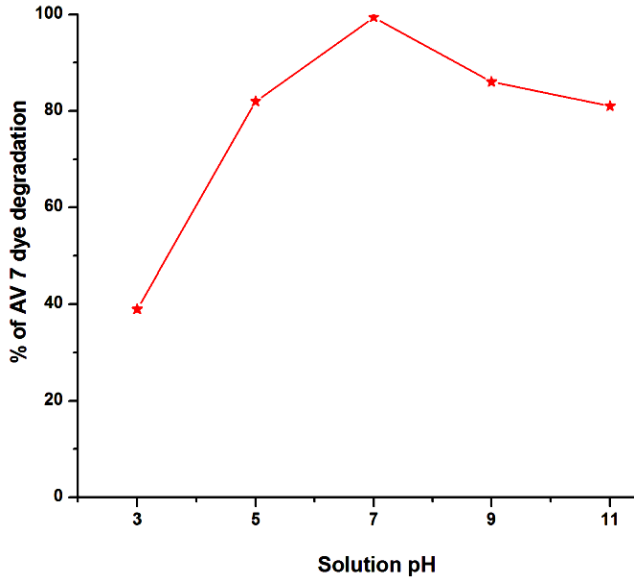


Fig. S6 Effect of solution pH on AV 7 degradation: AV 7 dye concentration = 5×10^{-4} M, catalyst suspended= 4 g L^{-1}, airflow rate = 8.1 mL s^{-1}, Irradiation time = 75 min, I_{solar} =1250×100±100 lux.

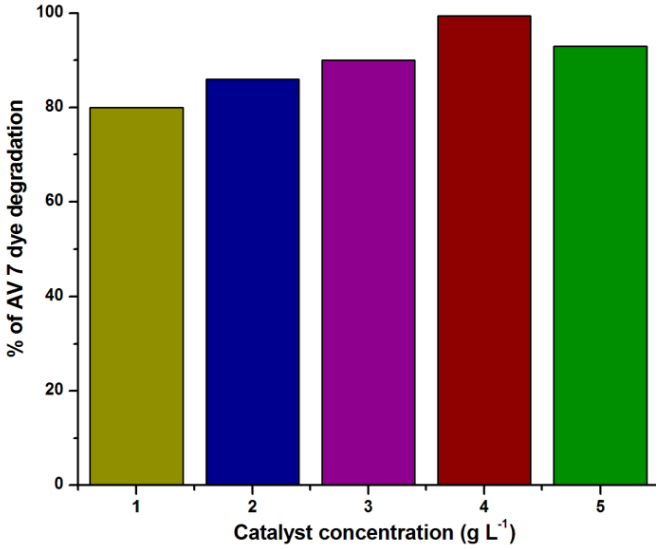


Fig. S7 Effect of catalyst loading on AV 7 degradation: AV 7 dye concentration = 5×10^{-4} M, airflow rate = 8.1 mL s^{-1}, pH = 7, Irradiation time = 75 min, I_{solar} =1250×100±100 lux.

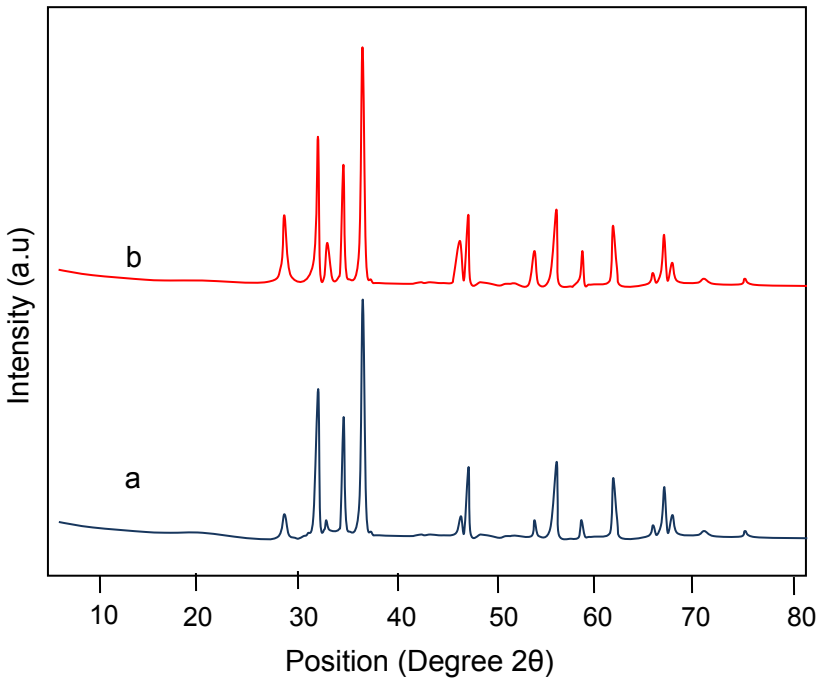


Fig. S8 XRD pattern of (a) Fresh catalyst and (b) After 4th cycle reusable catalyst.