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Supporting Information

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C-H Activation through Semiconductor Photocatalyzed Sulfoxidation of Alkanes

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HPLC Analysis by Indirect Photometric Detection: [1, 2]

SCL 10 AVP system controller, SIL -10A autosampler, SP10AVP model UV detector, Column (250 x 4.6 mm I.D.) filled with Partisil 10 SAX (Whatman) which is a strong anion exchanger with $N^{+}R_3$ functionality. Water-acetonitrile (60/40, v/v) with 0.01 M potassium hydrogenphthalate as UV absorbing counter ion was employed as eluent. Detections were made at 304 nm and the pH value of the eluent was 5.8.

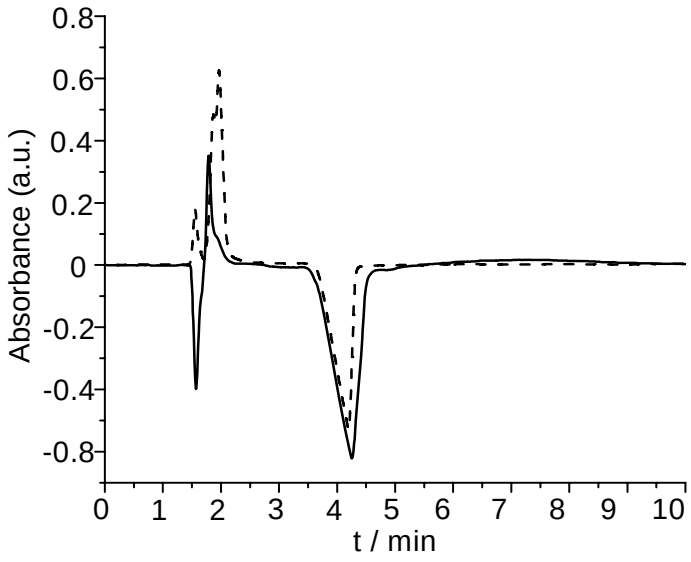

Fig. S1 HPLC-chromatogram of the reaction product obtained in the photosulfoxidation of n-heptane (–) and of authentic 1-

heptanesulfonic acid (---). The presence of small amounts of 2-heptanesulfonic acid and other regioisomers cannot be excluded.

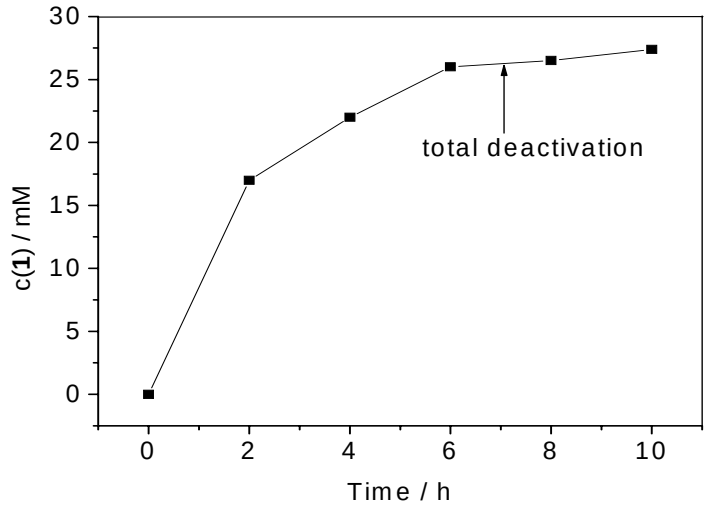

Fig. S2 Photosulfoxidation of n-heptane as function of irradiation time.

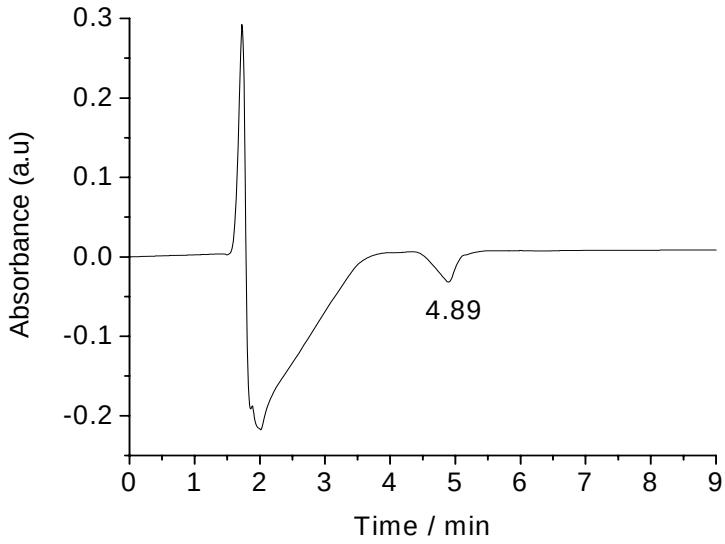

Fig. S3 HPLC chromatogram of 1-adamantanesulfonic acid obtained in the photosulfoxidation in glacial acetic acid. The peak at 2.0 min corresponds to acetic acid.

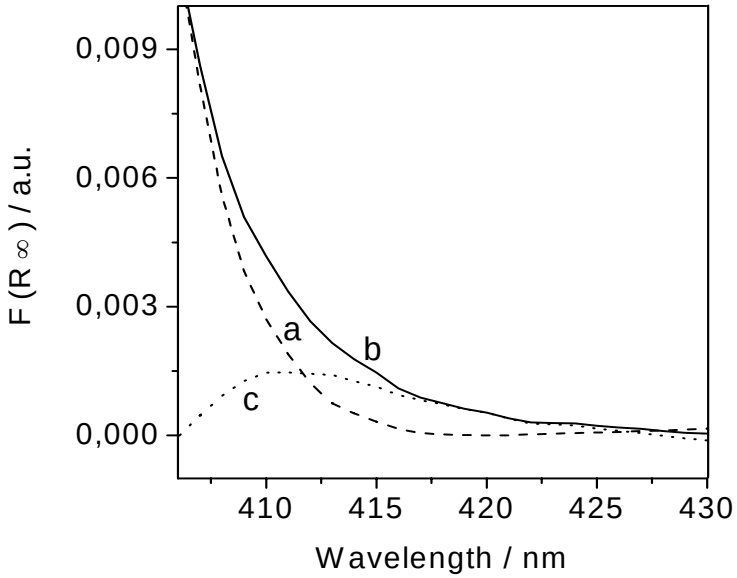

Fig. S4 Plots of Kubelka-Munk function vs. wavelength of P25 (a), P25/SO_2 (b) and (b)-(a).

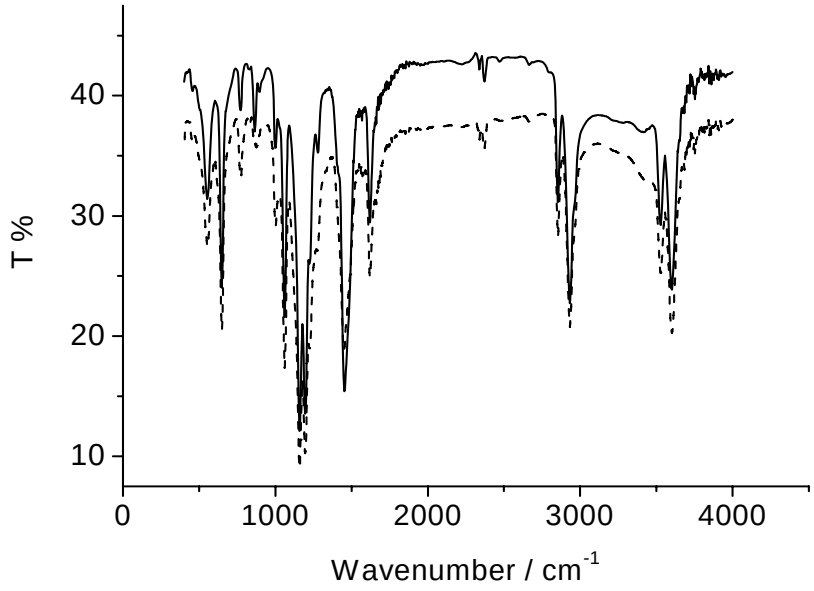

Fig. S5 IR spectra of the sodium salt of the reaction product obtained in the photosulfoxidation of cyclohexane (–) and of authentic cyclohexanesulfonic acid sodium salt(---).

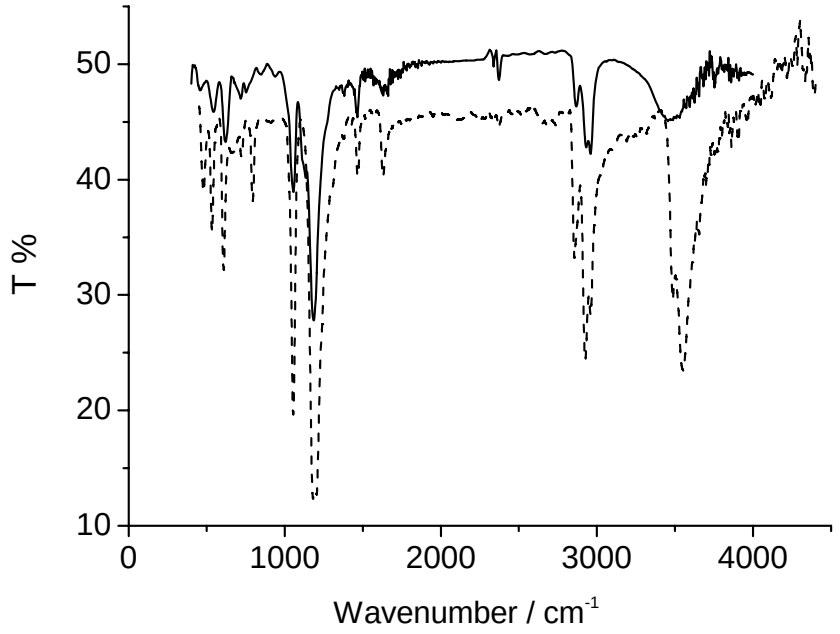

Fig. S6 IR spectra of the sodium salt of the reaction product obtained in the photosulfoxidation of n-heptane (—) and of authentic 1-heptanesulfonic acid sodium salt(---).

References

[1] Larson, J. R.; J*. of Chromatogr.* **1986**, 356, 379.

[2] Small, H.; Miller, T. E. Jr. *Anal. Chem.* **1982**, 54, 462.