

Electronic Supplementary Material (ESI) for New Journal of Chemistry.

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Supporting Information

Visible-light photocatalytic trifluoromethylation of arenes using graphene oxide as metal-free photocatalyst

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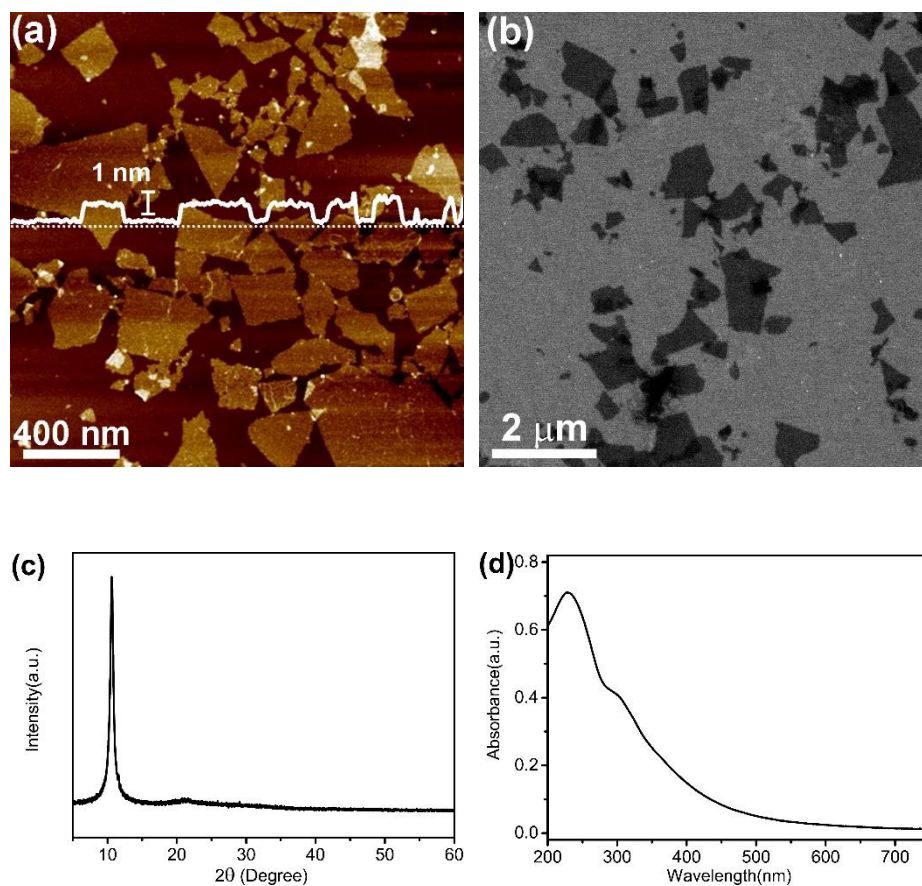


Figure S1. (a) AFM and (b) FESEM images, (c) XRD and (d) UV-adsorption curves of the as-used GO sheets.

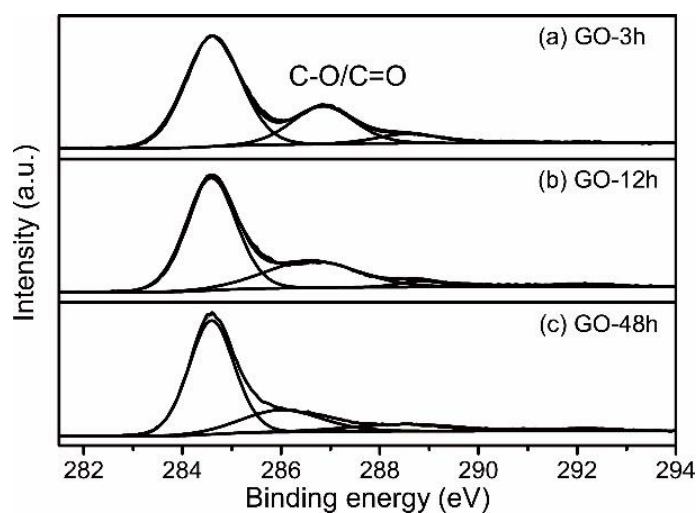


Figure S2. C1 XPS spectra of GO samples: (a) after 3h irradiation, (b) after 12h radiation, (c) after 48h irradiation

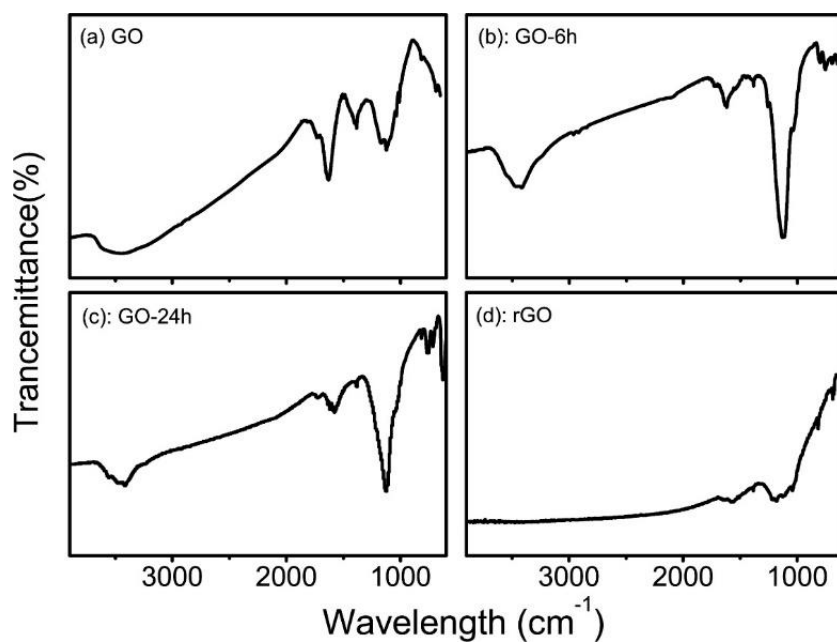


Figure S3. FT-IR spectra of GO samples: (a) original ones, (b) GO-6h, (c) GO-24h, (d) rGO.

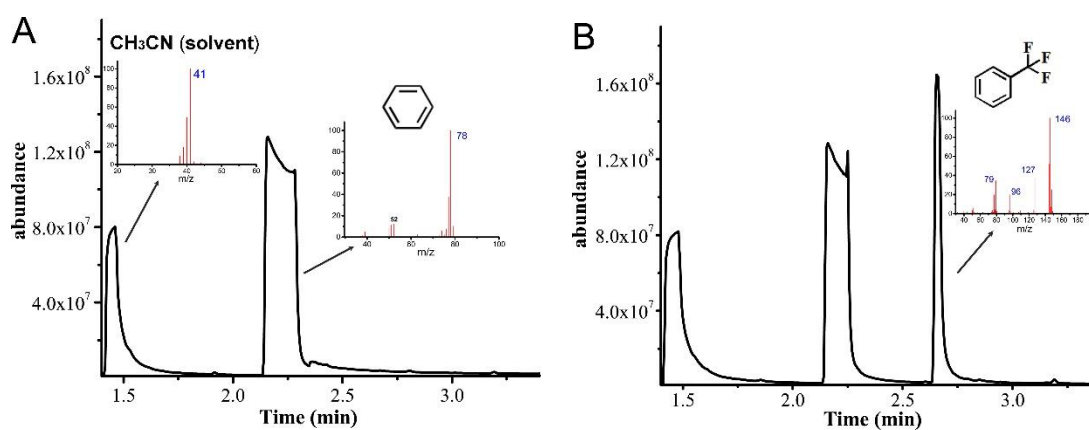
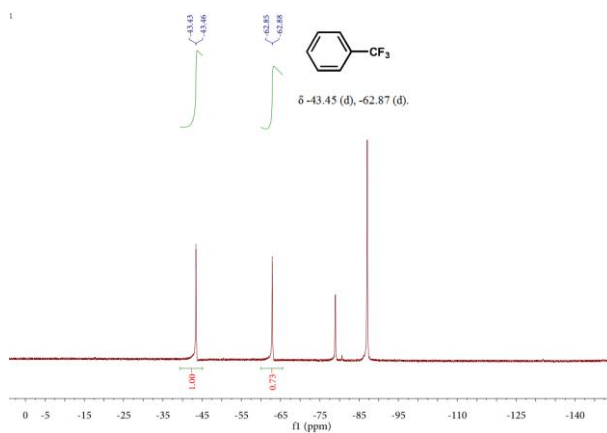


Figure 4S. GC-MS spectra of benzene before (A) and after (B) light irradiation.

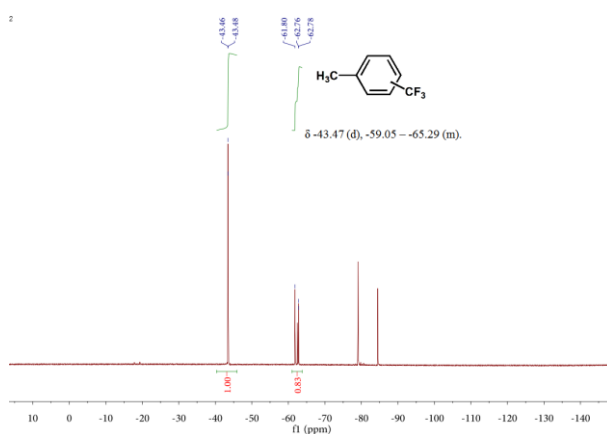
^{19}F NMR spectra of several representative products.

1. Benzene



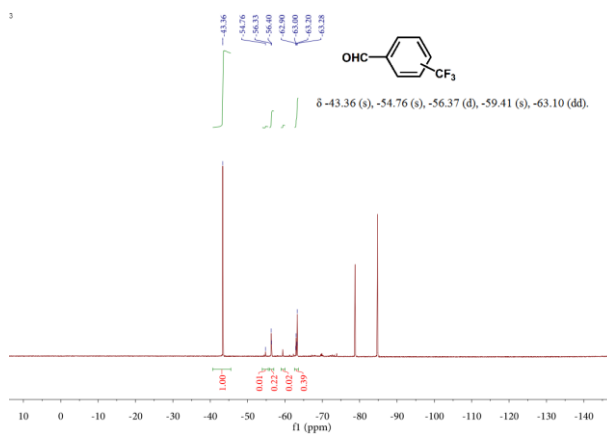
^{19}F NMR (376 MHz, None) δ -43.45 (d, $J = 10.5$ Hz), -62.87 (d, $J = 10.5$ Hz).

2. Toluene



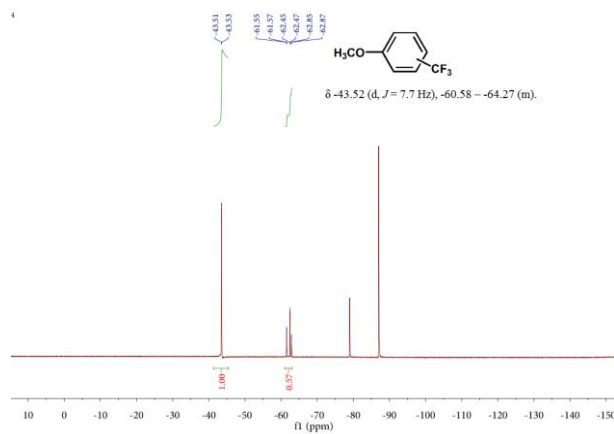
^{19}F NMR (376 MHz, None) δ -43.47 (d, $J = 5.3$ Hz), -59.05 – -65.29 (m).

3. Benzaldehyde



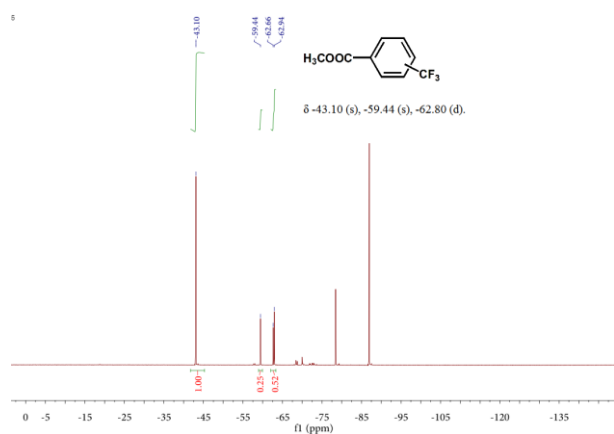
^{19}F NMR (376 MHz, None) δ -43.36 (s), -54.76 (s), -56.37 (d, $J = 27.2$ Hz), -59.41 (s), -63.10 (dd, $J = 108.4, 33.9$ Hz).

4. Anisole



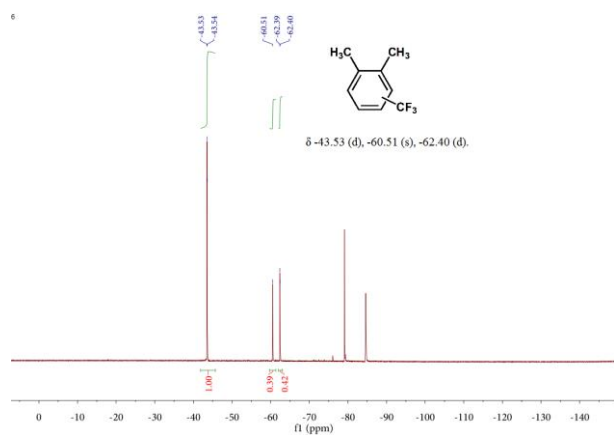
^{19}F NMR (376 MHz, None) δ -43.52 (d, $J = 7.7$ Hz), -60.58 – -64.27 (m).

5. Methyl benzoate



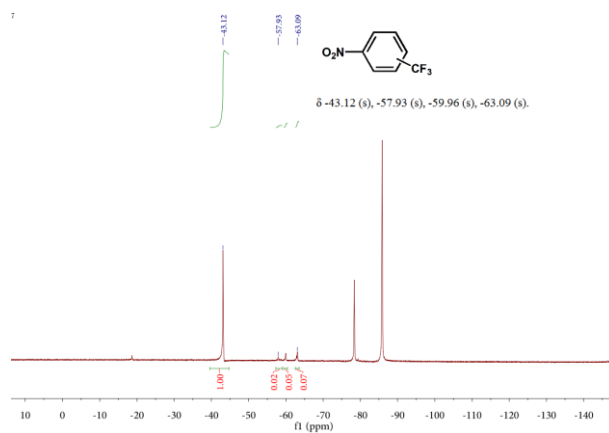
^{19}F NMR (376 MHz, None) δ -43.10 (s), -59.44 (s), -62.80 (d, $J = 107.0$ Hz).

6. o-Xylene



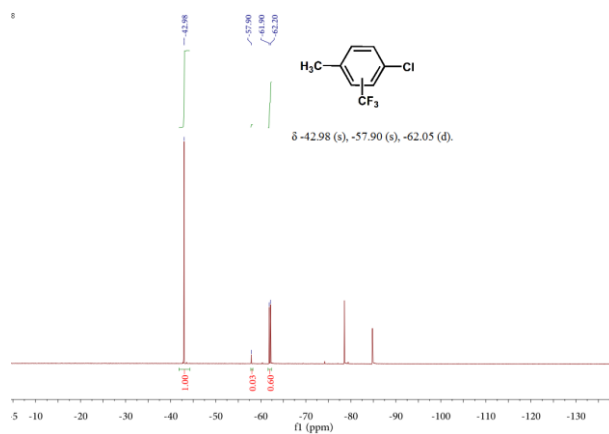
^{19}F NMR (376 MHz, None) δ -43.53 (d, $J = 4.7$ Hz), -60.51 (s), -62.40 (d, $J = 4.8$ Hz).

7. Nitrobenzene



^{19}F NMR (376 MHz, None) δ -43.12 (s), -57.93 (s), -59.96 (s), -63.09 (s).

8. p-Chlorotoluene



^{19}F NMR (376 MHz, None) δ -42.98 (s), -57.90 (s), -62.05 (d, $J = 112.1$ Hz).