

Order the following substrates according to increased reactivity toward Friedel-Crafts reactions. [*]

$$\bigcap_{\mathsf{OMe}}^{\mathsf{OMe}} \quad \bigcap_{\mathsf{NO}_2}^{\mathsf{OMe}} \quad \bigcap_{\mathsf{NO}_2}^{\mathsf{CI}} \quad \bigcap_{\mathsf{OMe}}^{\mathsf{Me}} \quad \bigcap_{\mathsf{O2}}^{\mathsf{NO}_2} \bigcap_{\mathsf{Br}}^{\mathsf{NO}_2} \bigcap_{\mathsf{Br}}^{\mathsf{NO}$$

Indicate the most activated position towards Friedel-Crafts reactions. [★]

Propose a synthetic strategy for each of the following retrosytheses. [★★]

Propose a synthesis of the following molecules (molecules are not reported in the paper, but similar substrates were successfully synthesized) using the strategy developed by List and co-workers (J. Am. Chem. Soc. 2023, 145, 15708– 15713). [★★]

Propose a synthesis of the following molecule molecules (the molecule is not reported in the paper, but similar substrates could be successfully synthesized) using the strategy developed by List and co-workers (J. Am. Chem. Soc. 2023, 145, 15708–15713). [Fmoc, fluorenylmethoxycarbonyl] [★★★]

6. Complete the synthesis of the catalyst. [MOM, methoxymethyl] [★★]

