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The Graphene Supported CoO Nanoparticles as an Advanced Catalyst for Aerobic Oxidation of Cyclohexane

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S1. Characterization of MnO/G catalyst

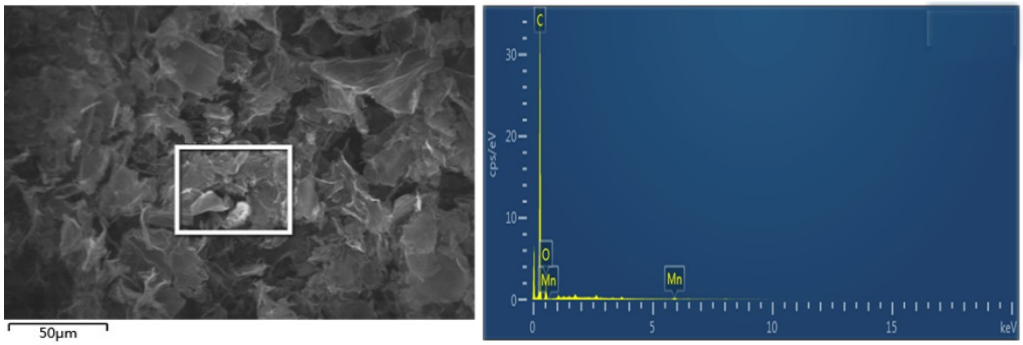

Fig. S1 SEM image and EDS pattern of the MnO@G catalyst.

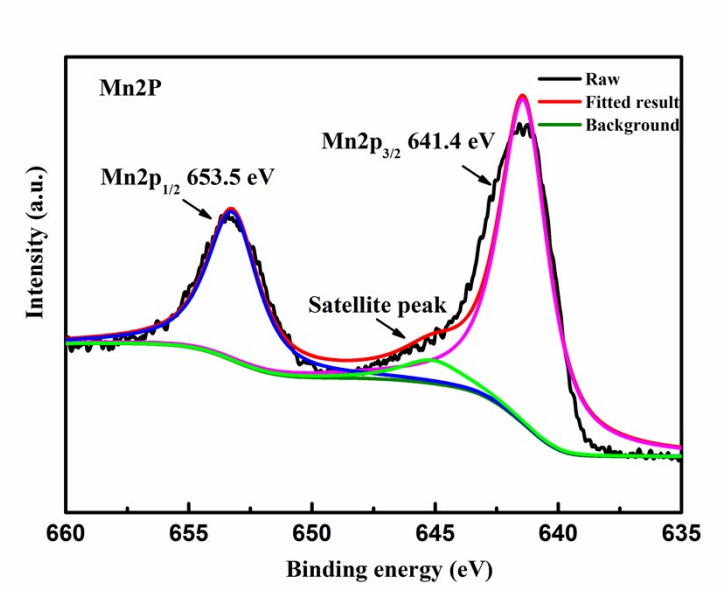

Fig. S2 Mn 2p spectrum of the synthesized MnO/G catalyst.

S2. Characterization of Co_3O_4/G catalyst

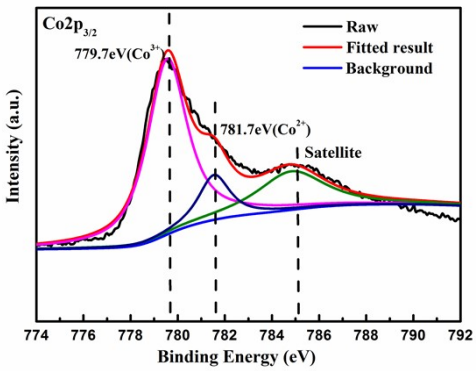

Fig. S3 Co 2p spectrum of the synthesized Co_3O_4/G catalyst.

S3. The influence of reaction temperature, oxygen pressure, reaction time and catalyst amount

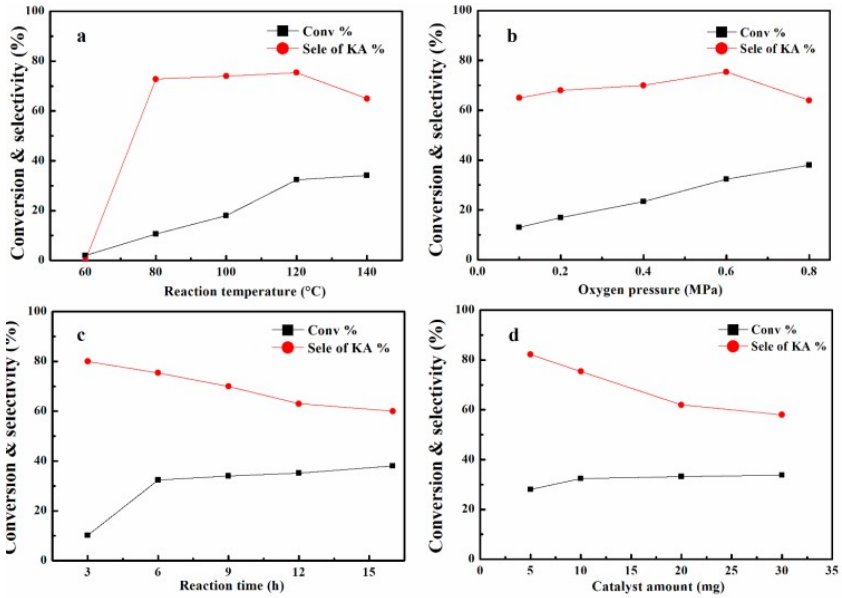

Fig. S4 Effect of reaction temperature (a), oxygen pressure (b), reaction time (c) and amount of catalyst (d) on cyclohexane oxidation over the CoO/G.

S3. Calculation of conversion and selectivity

Conversion of cyclohexane and Selectivity of the products were calculated by the following formulas:

$$Con._{-ane}\% = \frac{n_{-ane(initial)} - n_{-ane(residual)}}{n_{-ane(initial)}} \times 100$$

$$Sele._{-nol/-none}\% = \frac{n_{-nol/-none}}{n_{-ane(initial)} - n_{-ane(residual)}} \times 100$$

where $n_{-ane}(initial)$ and $n_{-ane}(residual)$ denote the content of cyclohexane in the reaction solution before and after the reaction, respectively, and n_{-nol} and n_{-none} denote the contents of cyclohexanol and cyclohexanone in the reaction mixture, respectively.