

Unravelling the Radicals Transition during the Carbon-catalyzed Oxidation of Cyclohexane by *In-Situ* Electron Paramagnetic Resonance in Liquid Phase

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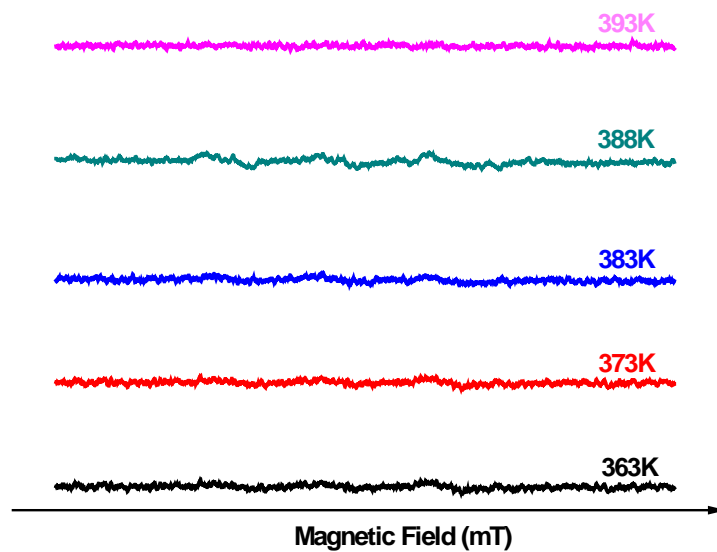


Figure S1. *In-situ* EPR spectra of CyH oxidation at different temperature without catalysts. Reaction condition: O₂ saturated, 2ml CyH.

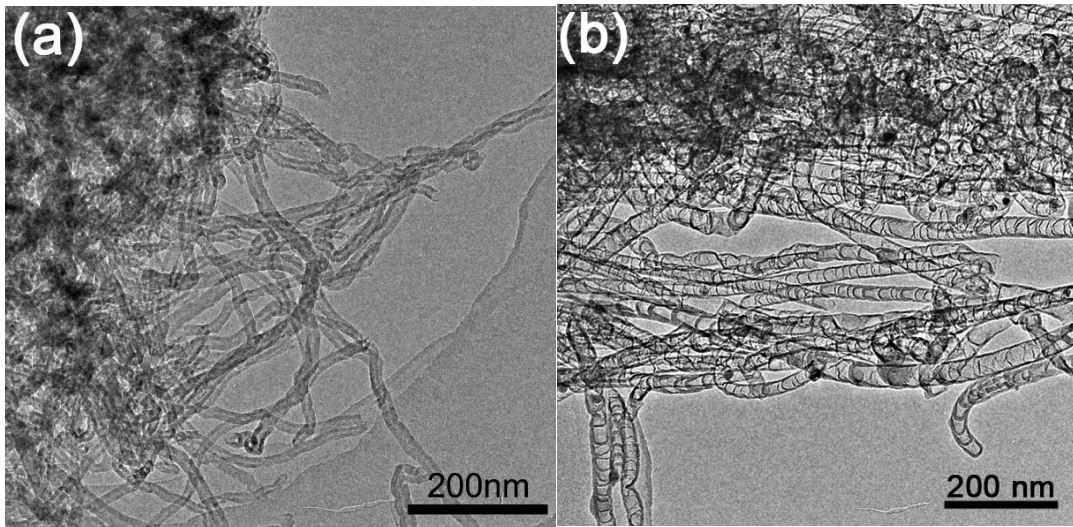


Figure S2. TEM images of (a) the CNTs and (b) the N-CNTs

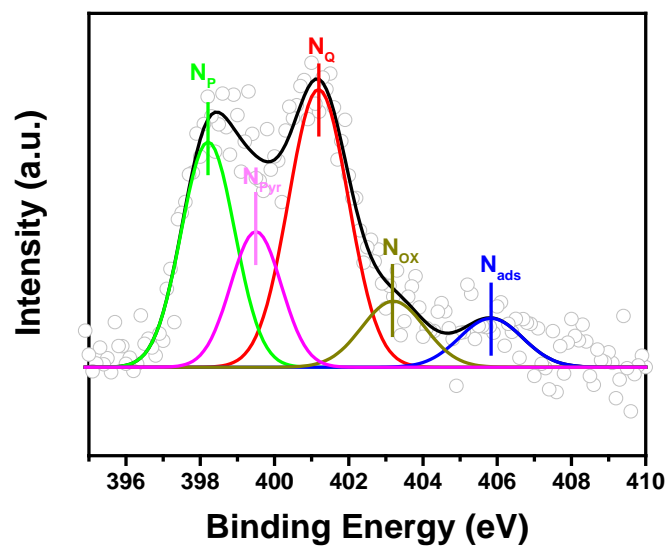


Figure S3. N1s XPS spectrum of the N-CNTs used in this work.

Table S1. Quantitative XPS analysis of the N-CNTs

| N/(C+N) | N_p | N_{pyr} | N_q | N_{ox} | N_{ads} |
|---------|-------|-----------|-------|----------|-----------|
| (%) | (%) | (%) | (%) | (%) | (%) |
| 4.36 | 28.1 | 16.1 | 38.8 | 9.7 | 7.2 |