Electronic Supplementary Material (ESI) for CrystEngComm.

Supporting Information

A one-pot general strategy towards the synthesis of core-satellite suprastructures

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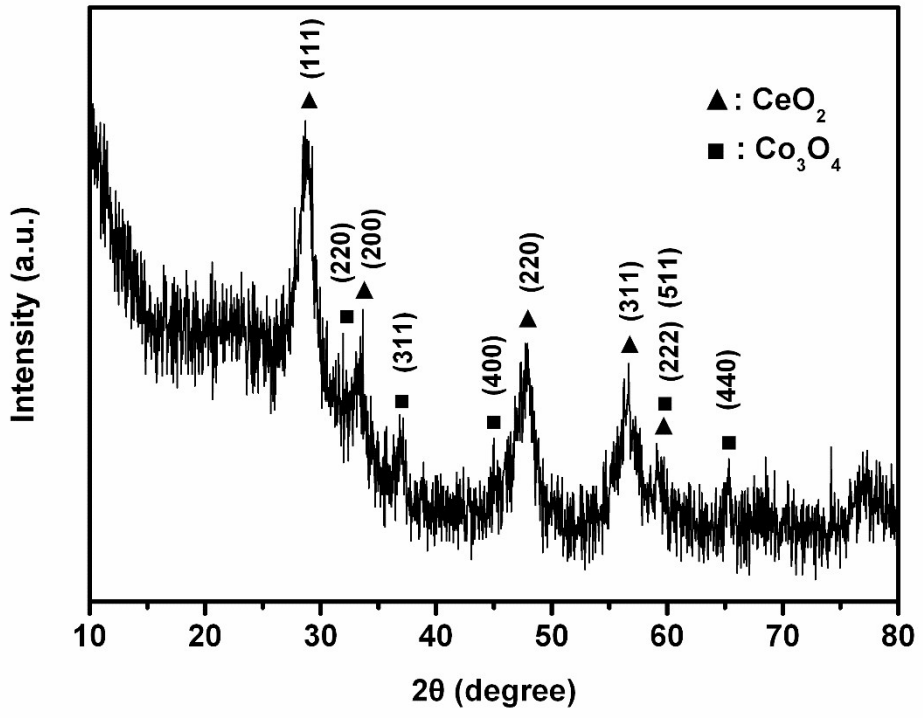

Figure S1 XRD patterns of CeO_2-Co_3O_4 core-satellite suprastructures.

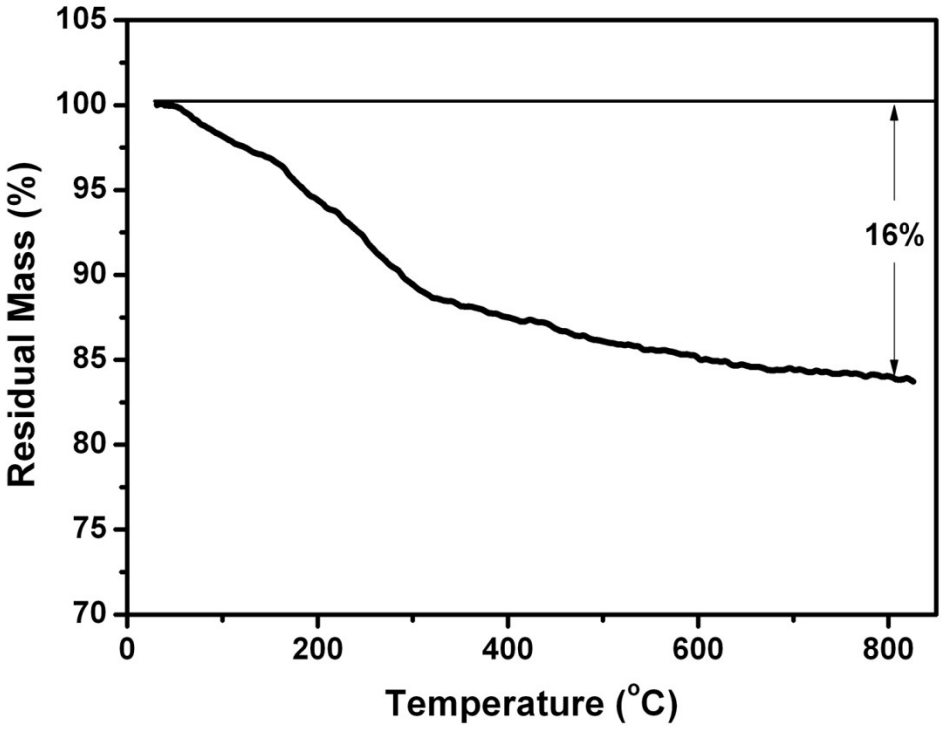

Figure S2. TGA of the sample of CoCe system at 70 min ($Ce(OH)_4$) measured with a heating rate of 10 $^oC/min^{-1}$ in air. The weight loss is 16%, indicating that the elimination of two water molecules (theoretical calculation of weight loss for two water molecules is 17.3%).

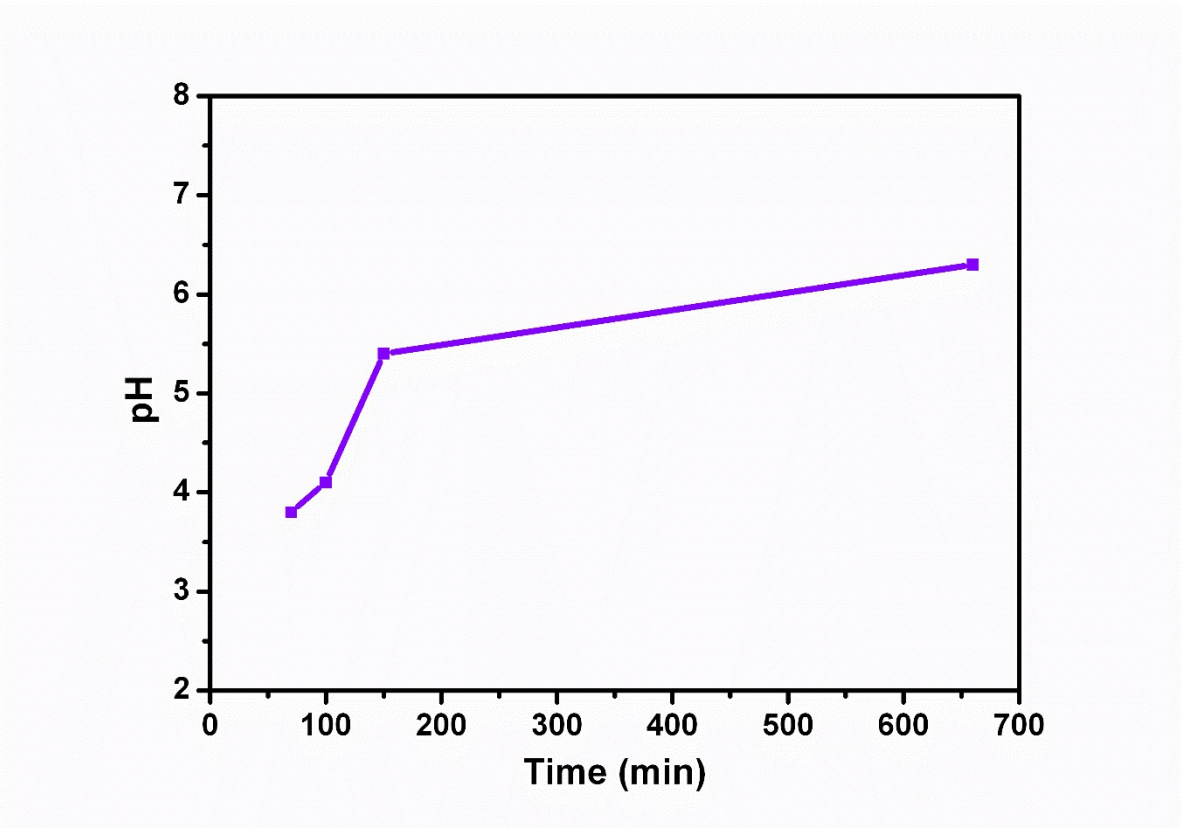

Figure S3. Evolution of pH value during the preparation of CeO_2-Co_3O_4 core-satellite suprastructures

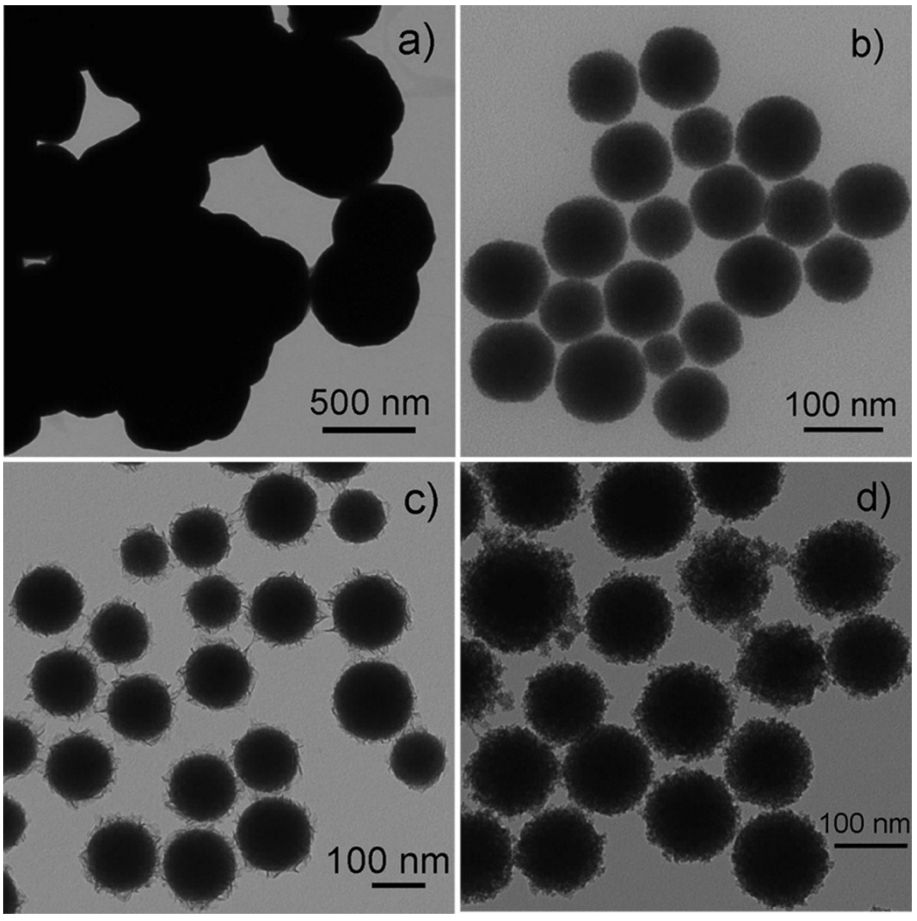

Figure S4. TEM images of the MnCe system at different reaction times: 60 min (a), 70 min (b), 100 min (c) and 11 h (d).

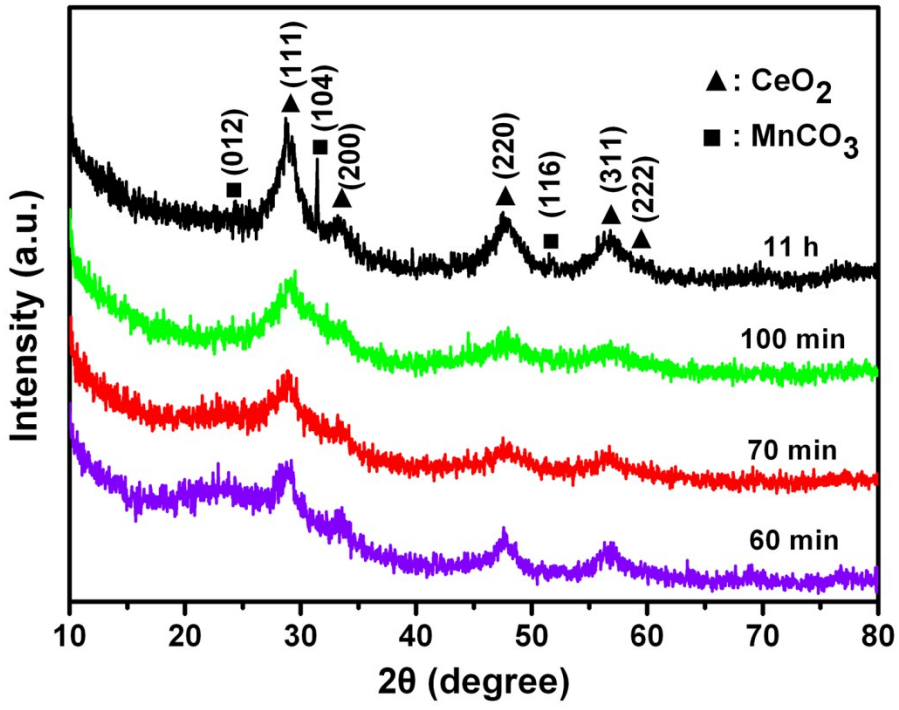

Figure S5. XRD patterns of the MnCe system at different reaction times: 60 min (a), 70 min (b), 100 min (c) and 11 h (d).

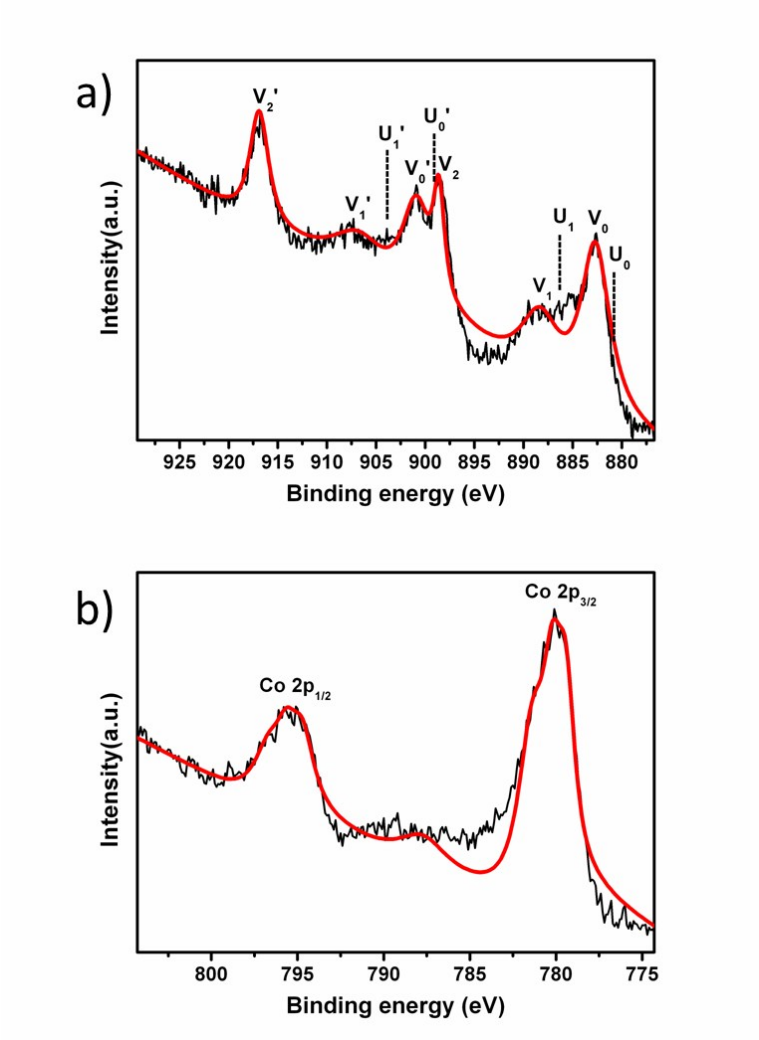

Figure S6. XPS spectra of CeO_2-Co_3O_4 (0.04 g $CoCl_2 \cdot 6H_2O$)

a) The Ce 3d level has a very complicated structure. Six peaks labeled as V_0, V_1, V_2 ($3d_{5/2}$), V_0', V_1', V_2' ($3d_{3/2}$) referring to three pairs of spin-orbit doublets can be identified and they are characteristic of Ce^{4+} 3d final states. Four peaks due to two pairs of doublets [noted as U_0, U_0', U_1, U_1'] corresponding to Ce^{3+} 3d states also can be observed.

b) The Co 2p XPS spectra exhibit two peaks at 795.6 and 780.1 eV, corresponding to the Co $2p_{1/2}$ and Co $2p_{3/2}$ spin−orbit peaks of Co_3O_4.

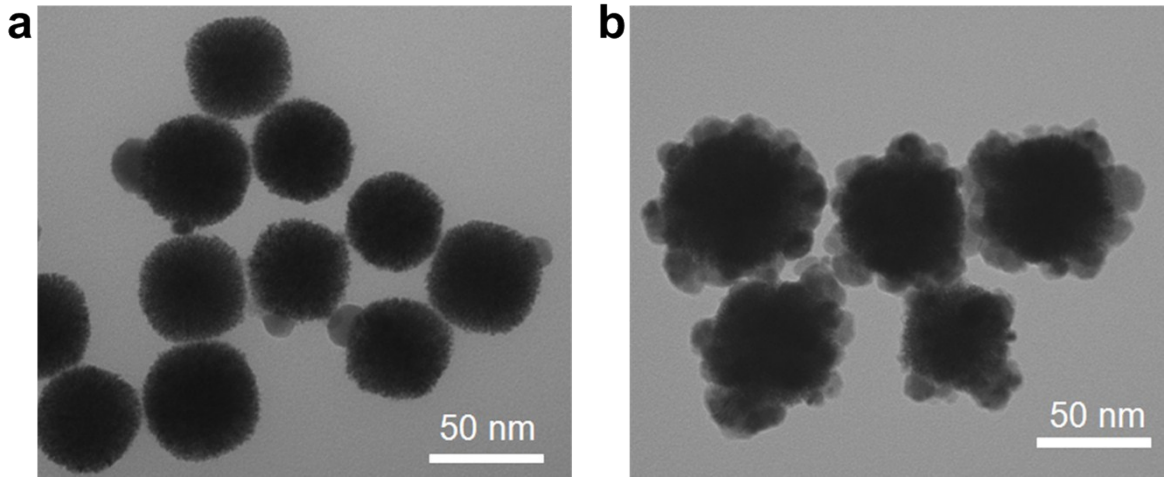

Figure S7. TEM images of the CoCe by changing amount of $CoCl_2$: a, 0.02 g $CoCl_2$; b, 0.06 g $CoCl_2$.