Electronic Supplementary Information:

The facet-dependent catalytic performance of CeO_2 nanocatalysts in the decomposition of ammonium perchlorate

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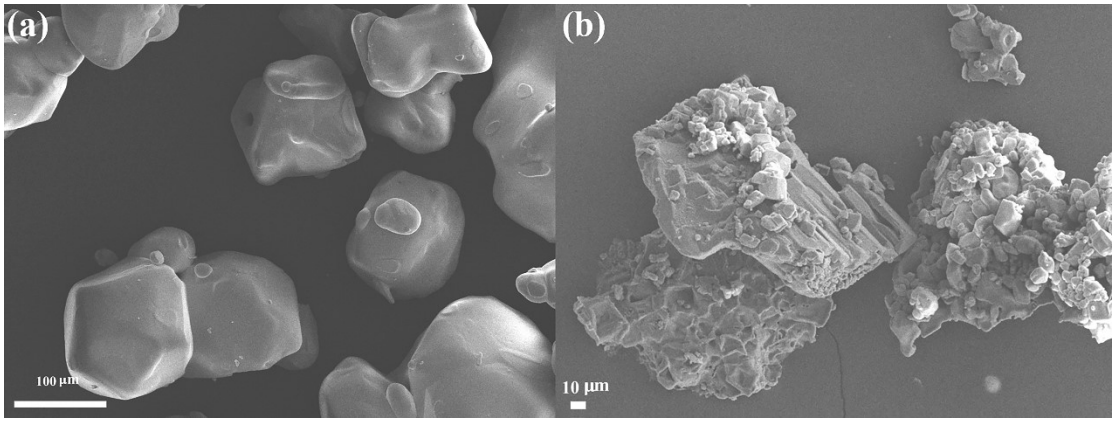

Fig. S1 SEM images of (a) raw AP and (b) grinding AP.

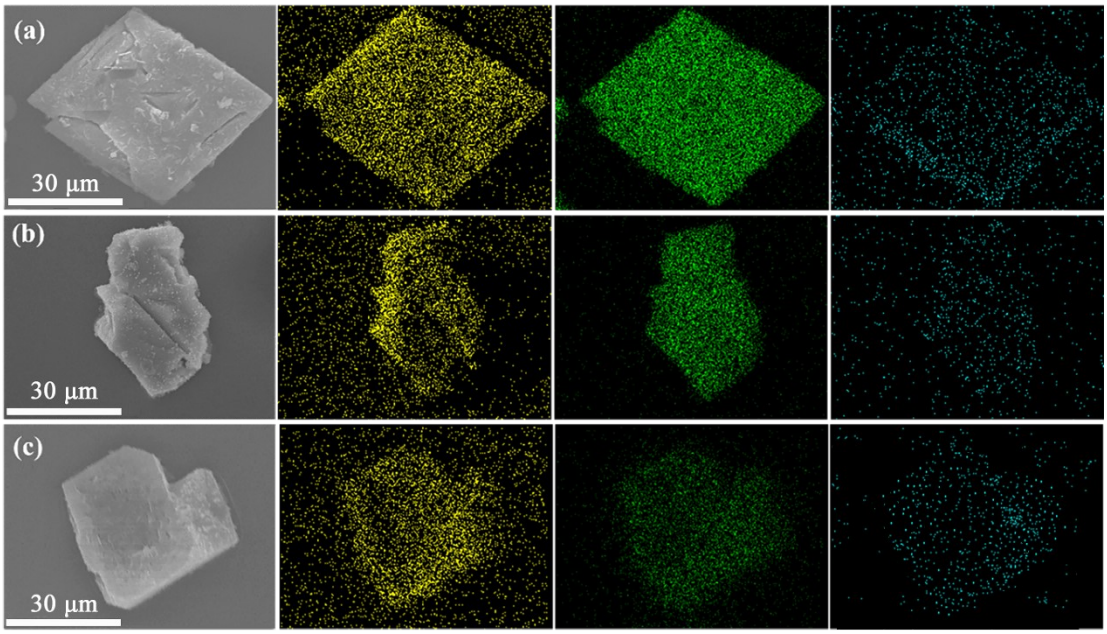

Fig. S2 SEM and EDS mapping images of grinding AP with 4 wt% of (a) CeO_2-R, (b) CeO_2-O, (c) CeO_2-C. The yellow, green, and blue represent Cl, O, and Ce elements, respectively.

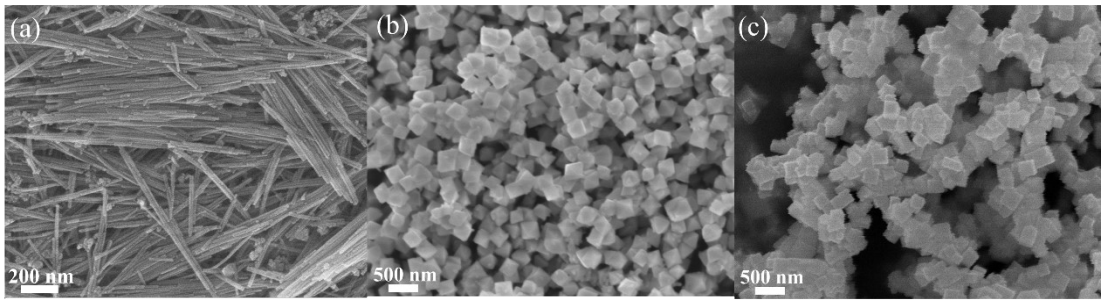

Fig. S3 SEM images of the samples after reaction (a) CeO_2-R, (b) CeO_2-O, (c) CeO_2-C.

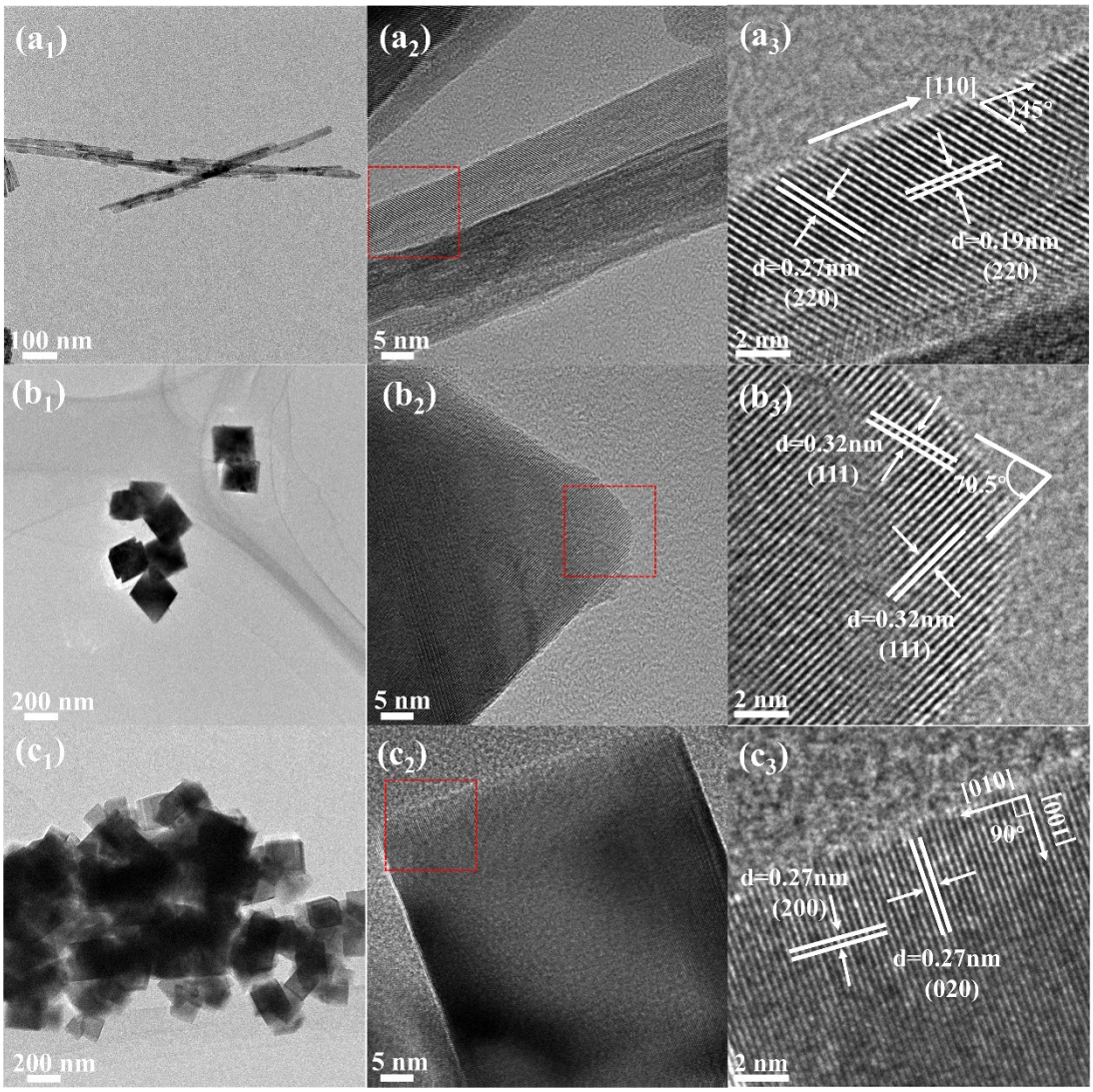

Fig. S4 TEM images and their corresponding HRTEM images of CeO_2-R (a_1, a_2, a_3), CeO_2-O (b_1, b_2, b_3) and CeO_2-C (c_1, c_2, c_3) after reaction.

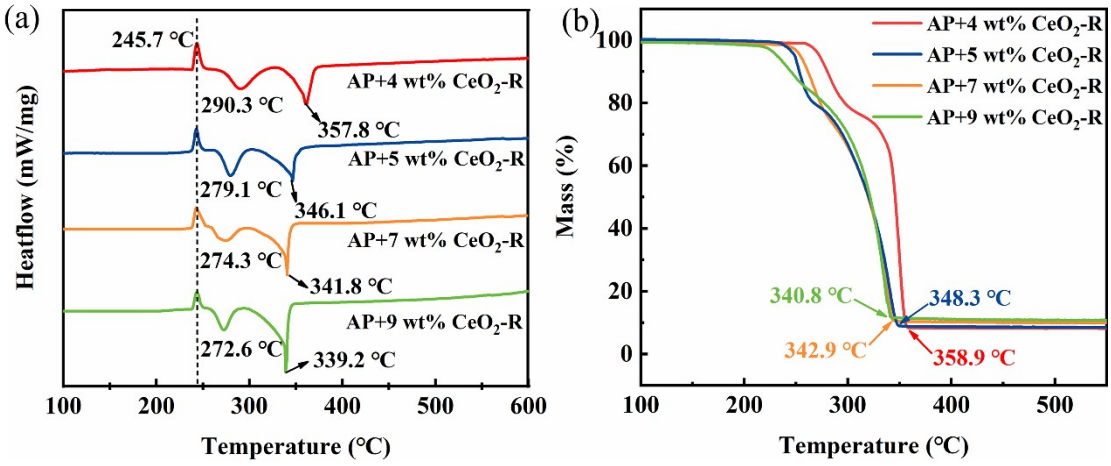

Fig. S5 (a) DSC and (b) TG curves of 4 wt%, 5 wt%, 7 wt% and 9 wt% CeO_2-R/AP.

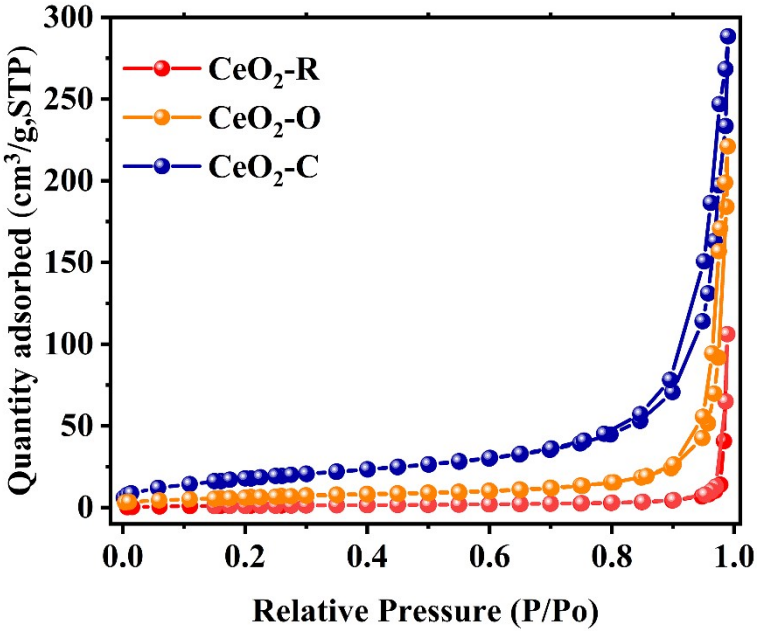

Fig. S6 The N_2 adsorption/desorption data of CeO_2 samples.

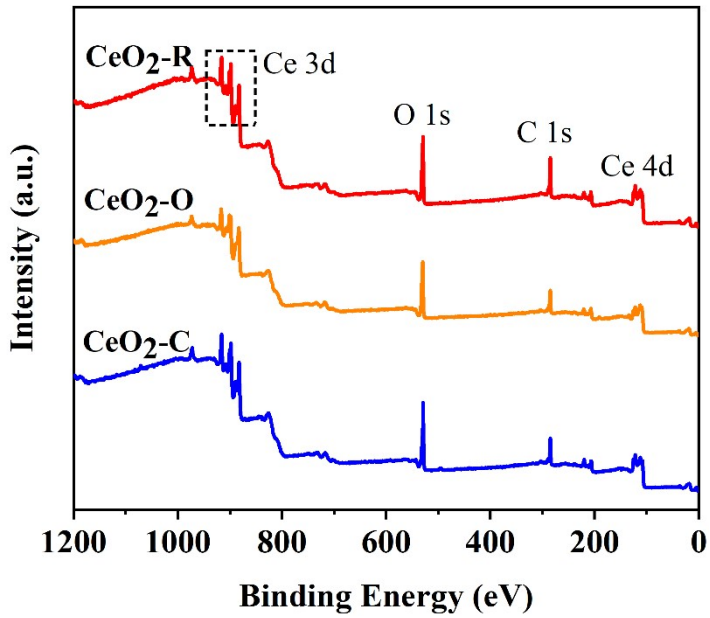

Fig. S7 XPS full spectra of CeO_2 samples with different morphologies: CeO_2-R, CeO_2-O and CeO_2-C.

Tab. S1 Summary of catalytic properties of the samples.

Entry	Catalyst	Mass %	Reduced HTD	Refs.
1	NiO nanorods	4 wt%	66	1
2	Fe_3O_4	1 wt%	59	2
3	Al	14.3 wt%	26.7	3
4	α-Fe_2O_3	2 wt%	53	4
5	Fe-Co-MOF	5 wt%	89.4	5
6	CeO_2	4 wt%	50.4	6
7	TiO_2	2 wt%	16.1	7
8	GO/Cu-MOF	5 wt%	82.25	8
9	Co	0.5 wt%	15	9
10	Fe	0.5 wt%	13	9
11	ZnO	4 wt%	118	10
12	WO_3	4 wt%	13.4	11
13	Cu+WO_3	4 wt%	71	11
14	**CeO_2 nanorods**	**4 wt%**	**70.8**	**Our work**

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