Electronic Supplementary Information (ESI)

Fabrication of supported Pt/CeO_2 nanocatalysts doped with different elements for CO oxidation: Theoretical and experimental studies

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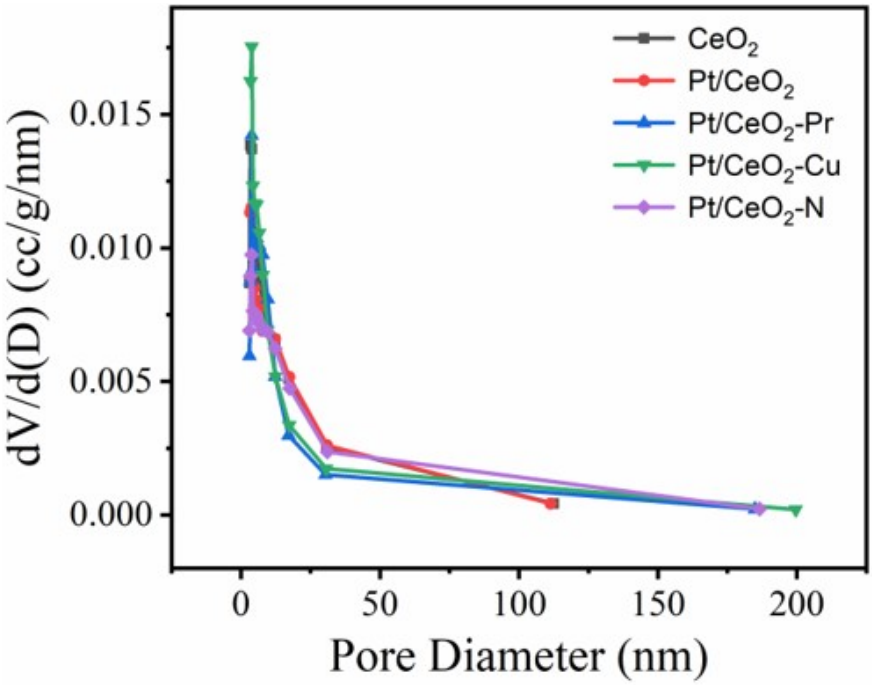

Figure S1. Pore size distribution plots of CeO_2, Pt/CeO_2, and Pt/CeO_2-M (M = Pr, Cu, N).

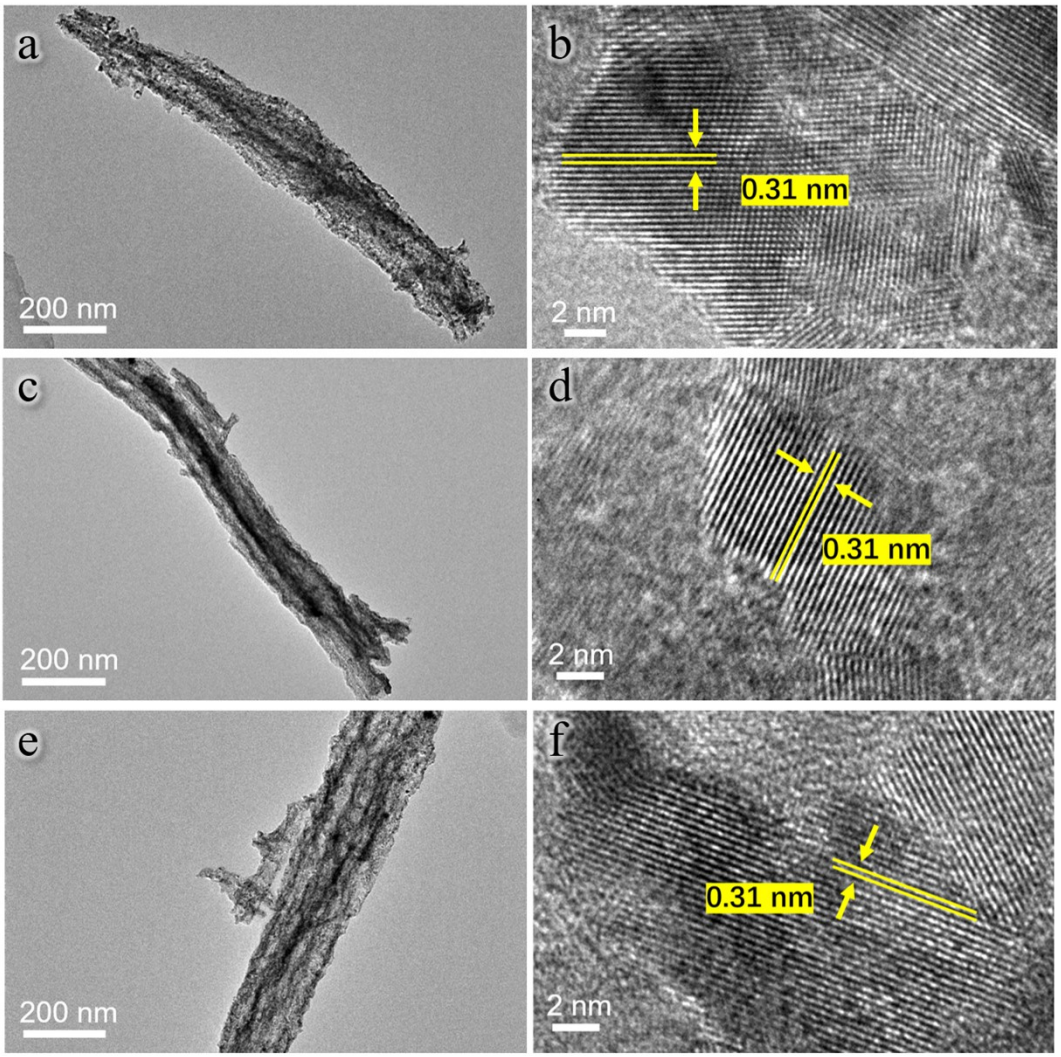

Figure S2. TEM and high-resolutionTEM images of (a, b) Pt/CeO_2, (c, d) Pt/CeO_2-Pr, and (e, f) Pt/CeO_2-N samples.

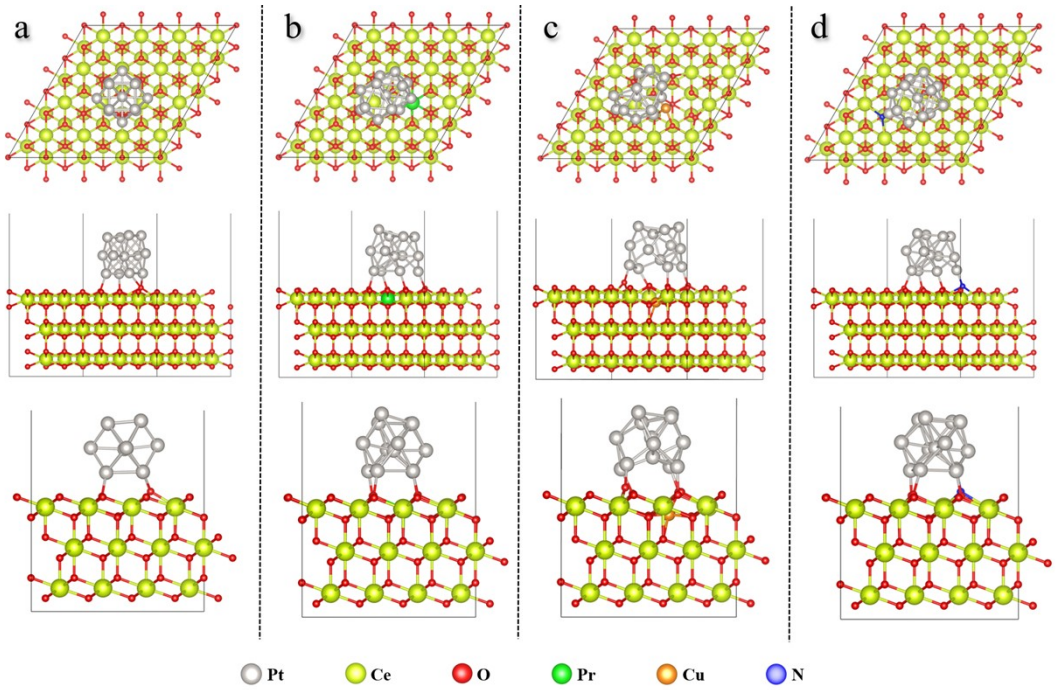

Figure S3. The optimized models of the four catalysts (a) Pt_{13}/CeO_2, (b) Pt_{13}/CeO_2-Pr, (c) Pt_{13}/CeO_2-Cu, and (d) Pt_{13}/CeO_2-N.

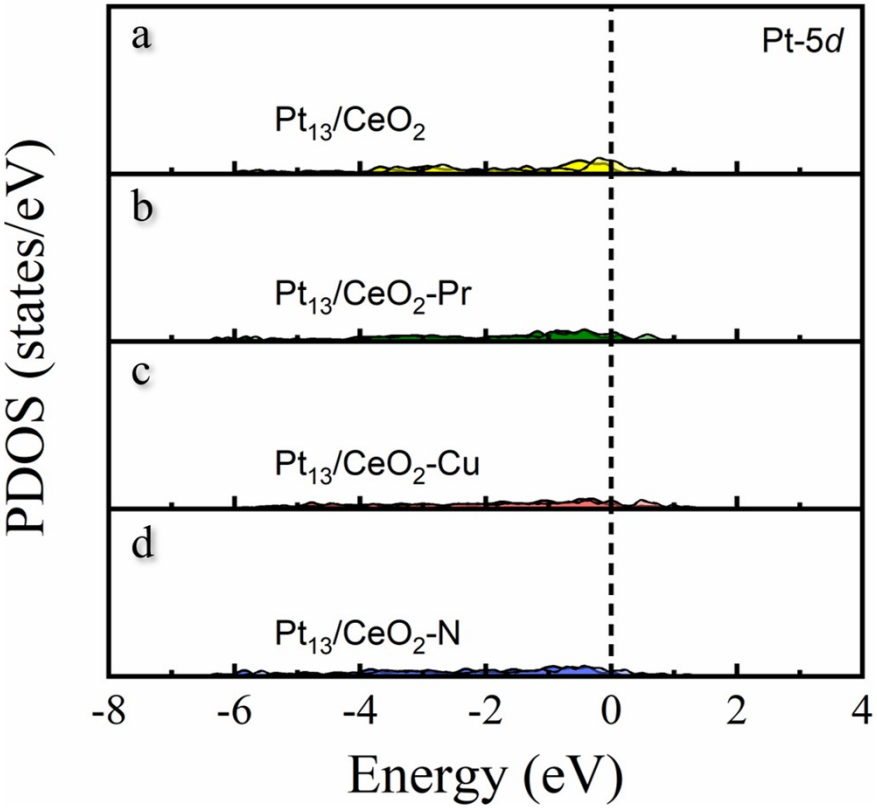

Figure S4. PDOS of Pt-5*d* state of (a) Pt_{13}/CeO_2, (b) Pt_{13}/CeO_2-Pr, (c) Pt_{13}/CeO_2-Cu, and (d) Pt_{13}/CeO_2-N.

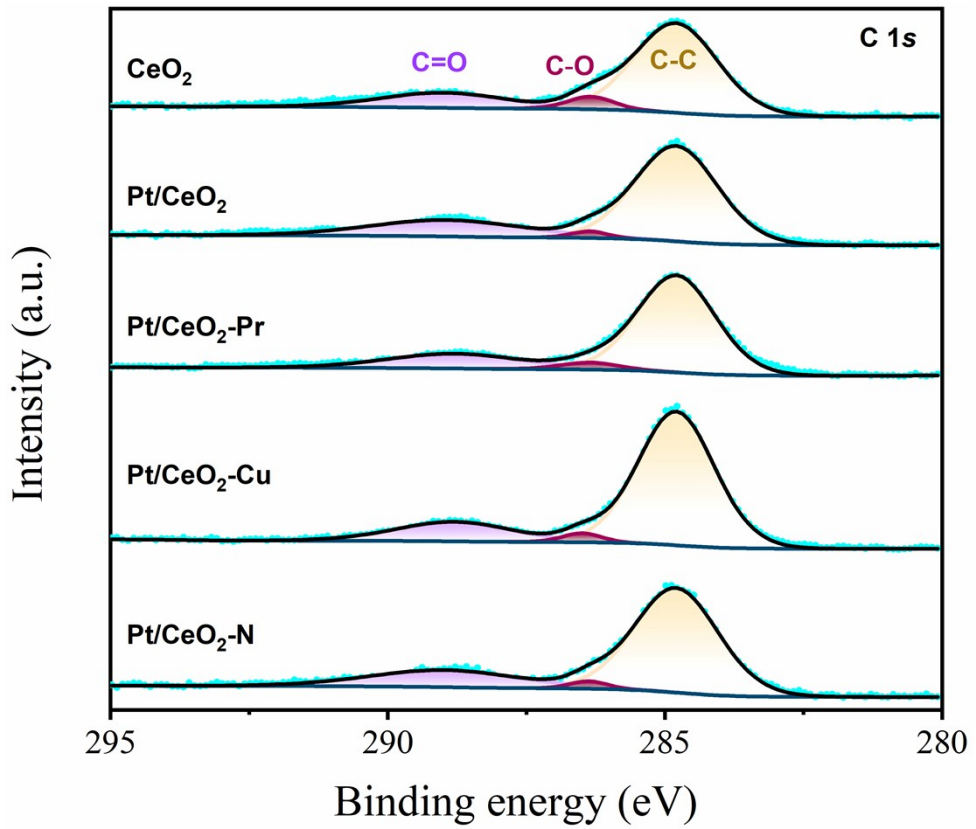

Figure S5. High-resolution XPS spectra of C 1*s* over five different catalysts.

Table S1. The activation energies (E_a) of different catalysts reported in the literature.

Catalyst	Activation energies (E_a) (kJ/mol)	Reference
CeO_2	64	[1]
FePc/CeO_2	50	[1]
Au/CeO_2	42	[1]
hemin/CeO_2	61	[1]
hemin-Au/CeO_2	21	[1]
FePc-Au/CeO_2	34	[1]
Pt/bio-CeO_2	45	[2]
Pd/bio-CeO_2	47	[2]
Au/bio-CeO_2	37	[2]
Ag/bio-CeO_2	49	[2]
Pt/CeO_2 500C	55	[3]
Pt/CeO_2 800C	79	[3]
Pt/(800C)CeO_2 500C	33	[3]
Pt/(800C)CeO_2 800C	56	[3]

References

1. L. Fan, J. Dai, Z. Huang, J. Xiao, Q. Li, J. Huang, S.-F. Zhou and G. Zhan, *iScience*, 2020, **23**, 101852.
2. B. Jiang, X. Cha, Z. Huang, S. Hu, K. Xu, D. Cai, J. Xiao and G. Zhan, *Molecular Catalysis*, 2022, **524**, 112251.
3. J. Lee, Y. Ryou, J. Kim, X. Chan, T. J. Kim and D. H. Kim, *The Journal of Physical Chemistry C*, 2018, **122**, 4972-4983.