

Construction of Cu-Ce/graphene catalysts via one-step hydrothermal method and their excellent CO catalytic oxidation performance

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Table S1 Relative contents of O 1s in various chemical states.

Samples	Chemical states	Binding energy (eV)	oxygen percent (%)
3Cu5Ce/graphene	O _α	529.1	2.91
	O _β	531.67	55.36
	O _γ	533.02	41.73
4Cu4Ce/graphene	O _α	529.47	17.97
	O _β	531.83	56.65
	O _γ	533.10	25.38
5Cu3Ce/graphene	O _α	529.55	28.69
	O _β	531.59	58.36
	O _γ	533.36	12.95
Used 5Cu3Ce/graphene	O _α	530.22	16.4
	O _β	531.64	53.0
	O _γ	533.54	30.6

Table S2 Results of H₂-TPR analysis.

Samples	Temperature of peaks (°C)			
	α	β	γ	δ
3Cu5Ce/graphene	253	379	533	630
4Cu4Ce/graphene	230	399	565	653
5Cu3Ce/graphene	208	414	574	671
Ce/graphene	-	-	576	639
Cu/graphene	223	515	-	614

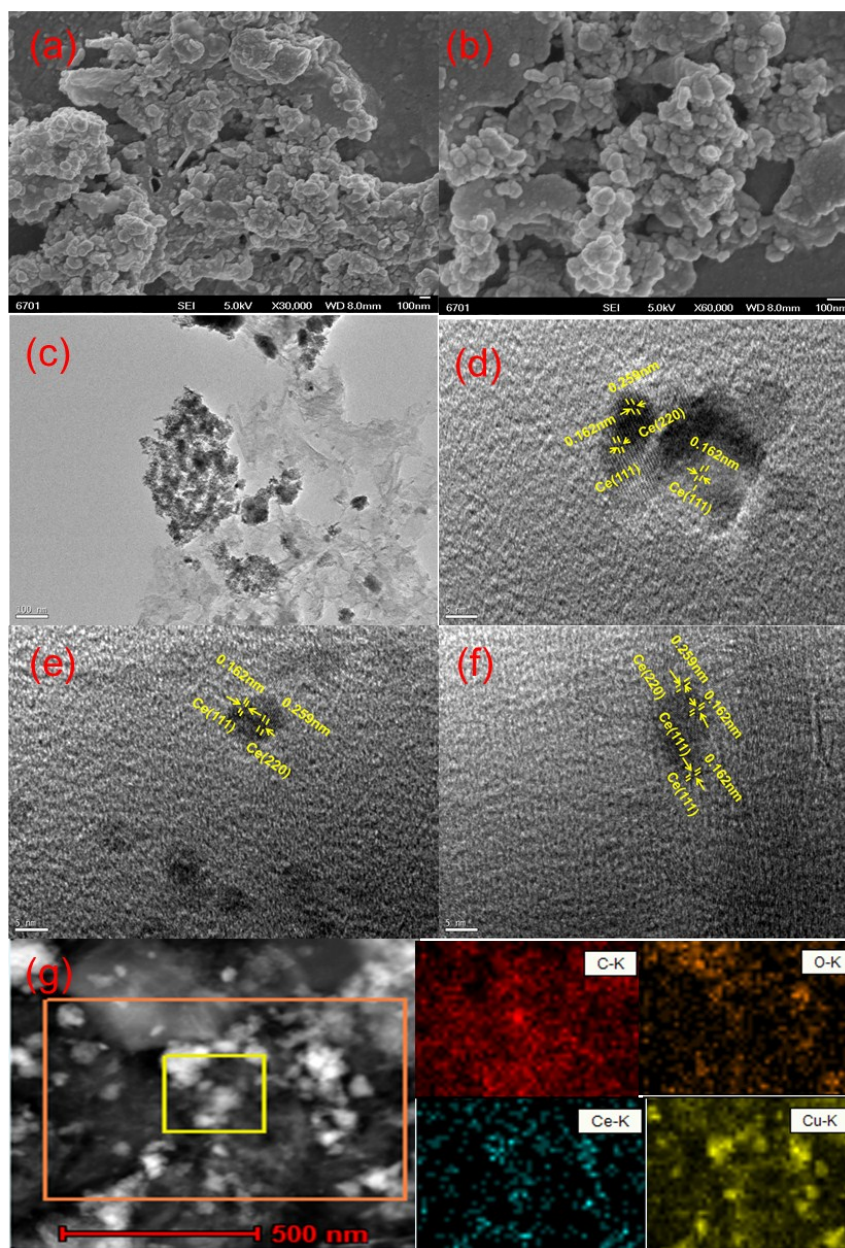


Fig. S1 SEM (a,b) and TEM (c) images of 5Cu₃Ce/graphene ,HRTEM images of 3Cu₅Ce/graphene (d), 4Cu₄Ce/graphene (e) and 5Cu₃Ce/graphene (f) catalysts, and elemental mapping of C, O, Ce, Cu for 5Cu₃Ce/graphene catalyst(g).

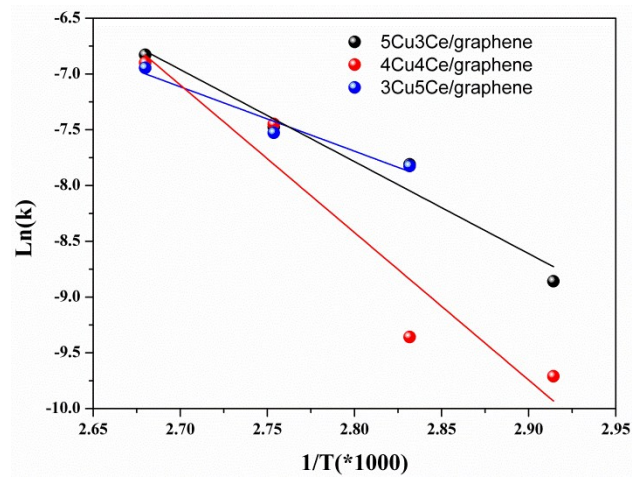


Fig.S2 Arrhenius plots of the 3Cu5Ce/graphene, 4Cu4Ce/graphene and 5Cu3Ce/graphene catalysts for CO oxidation.