

Supplementary materials for

Hierarchical Au/CeO₂ systems – influence of Ln³⁺ dopants on the catalytic activity in the propane oxidation process.

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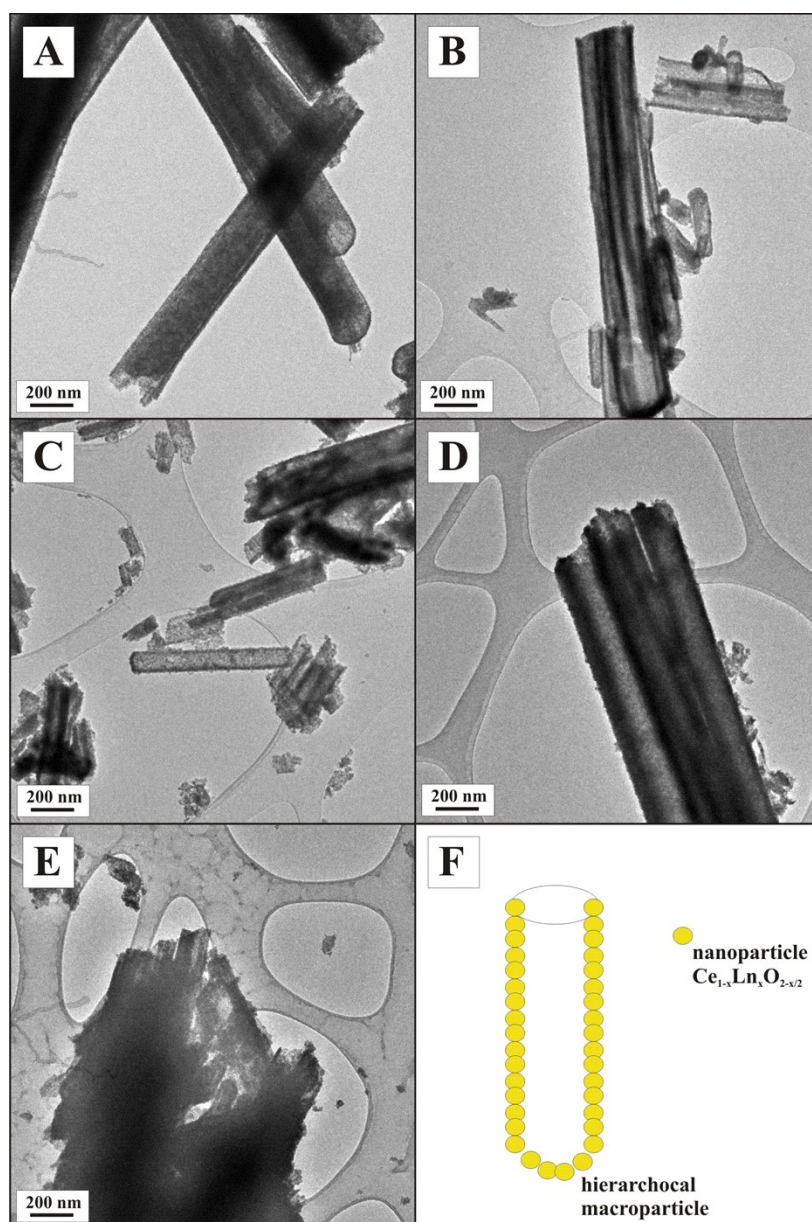


Fig.S1 TEM images of hierarchical tube-like (A) CeO₂, (B) Ce_{0.9}La_{0.1}O_{1.95}, (C) Ce_{0.9}La_{0.05}Yb_{0.05}O_{1.95}, (D) Ce_{0.9}Gd_{0.1}O_{1.95}, (E) Ce_{0.9}Yb_{0.1}O_{1.95}, (F) model of the hierarchocal tube-like macroparticle.

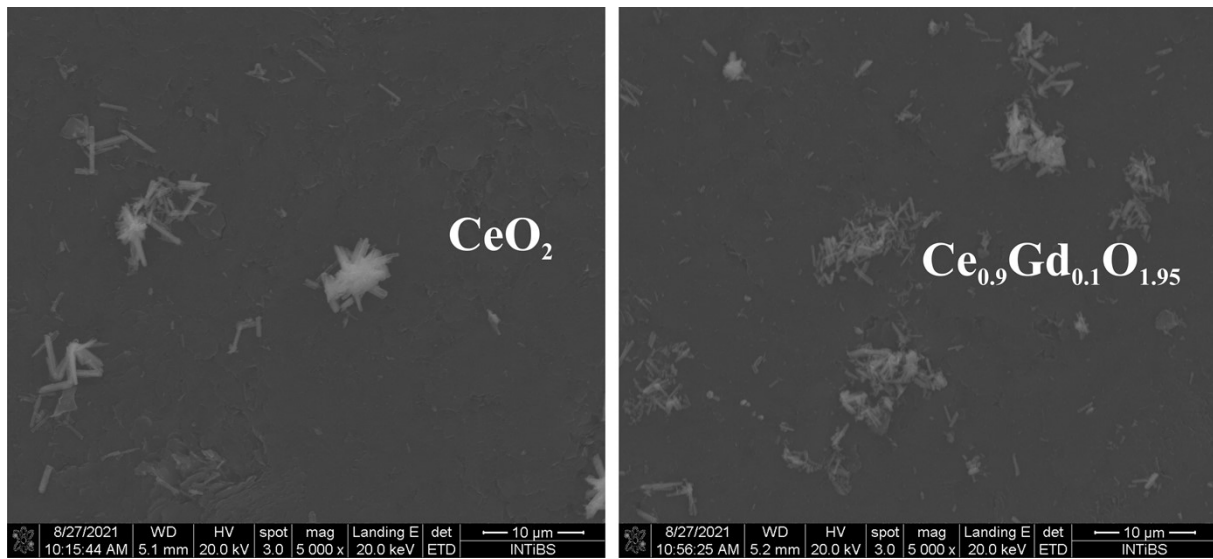


Fig.S2 SEM images of hierarchical tube-like CeO_2 and $\text{Ce}_{0.9}\text{Gd}_{0.1}\text{O}_{1.95}$

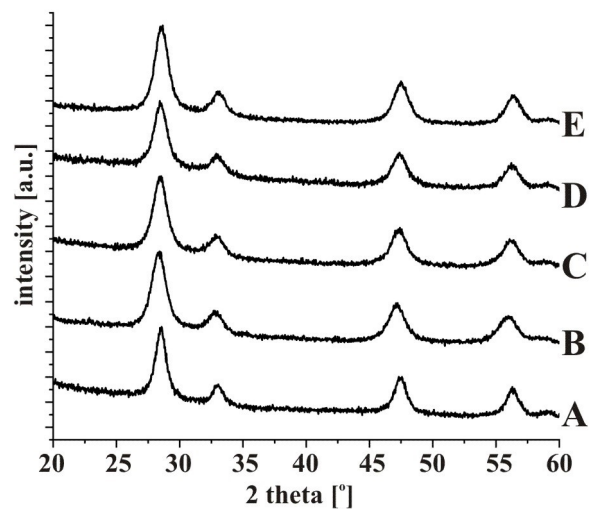


Fig.S3 XRD patterns of (A) CeO_2 , (B) $\text{Ce}_{0.9}\text{La}_{0.1}\text{O}_{1.95}$, (C) $\text{Ce}_{0.9}\text{La}_{0.05}\text{Yb}_{0.05}\text{O}_{1.95}$, (D) $\text{Ce}_{0.9}\text{Gd}_{0.1}\text{O}_{1.95}$, (E) $\text{Ce}_{0.9}\text{Yb}_{0.1}\text{O}_{1.95}$.

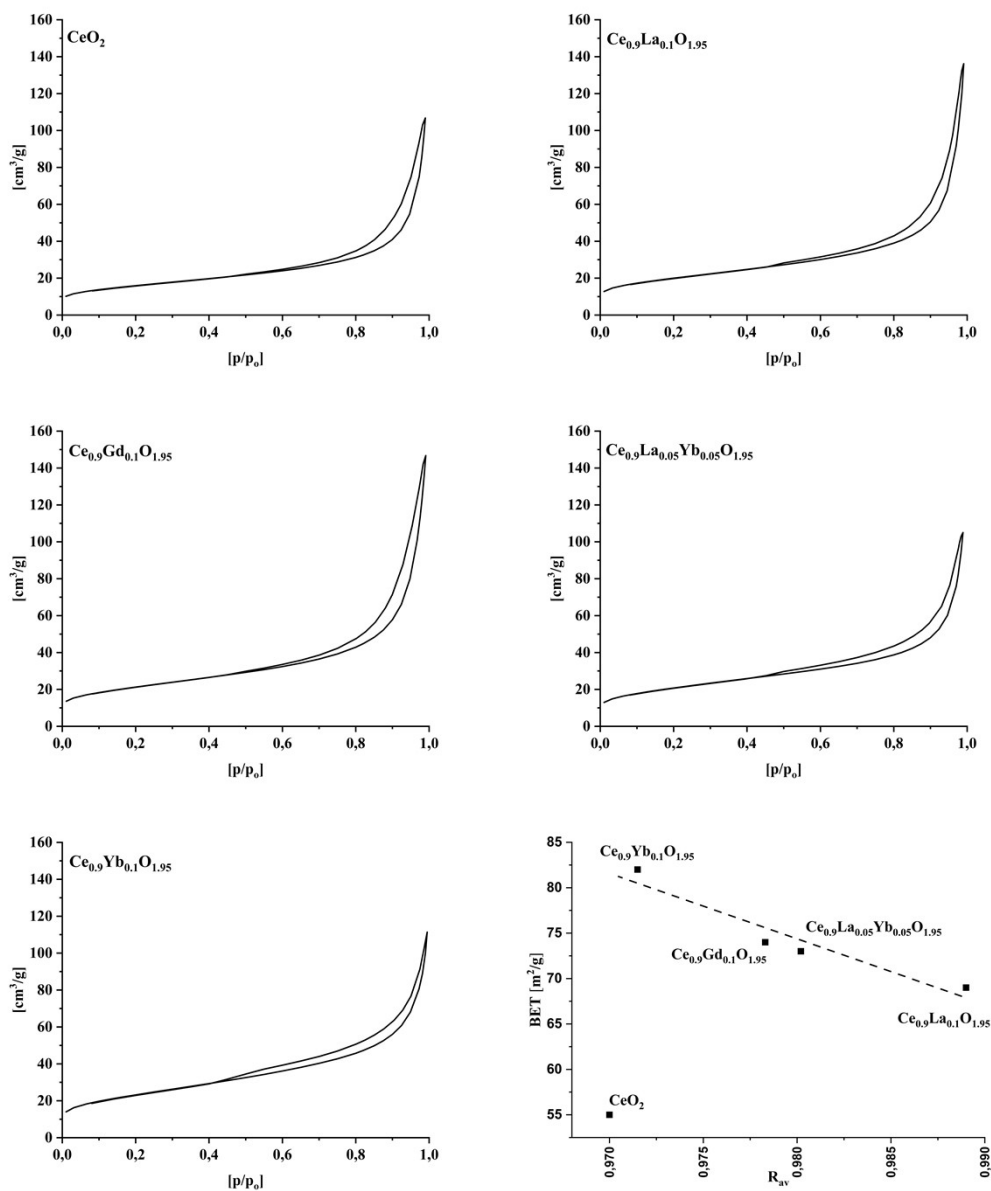


Fig.S4 Nitrogen adsorption–desorption isotherm of investigated hierarchical supports and a linear relationship between the mean lanthanide ion radius and the S_{BET} surface area for our sample series.

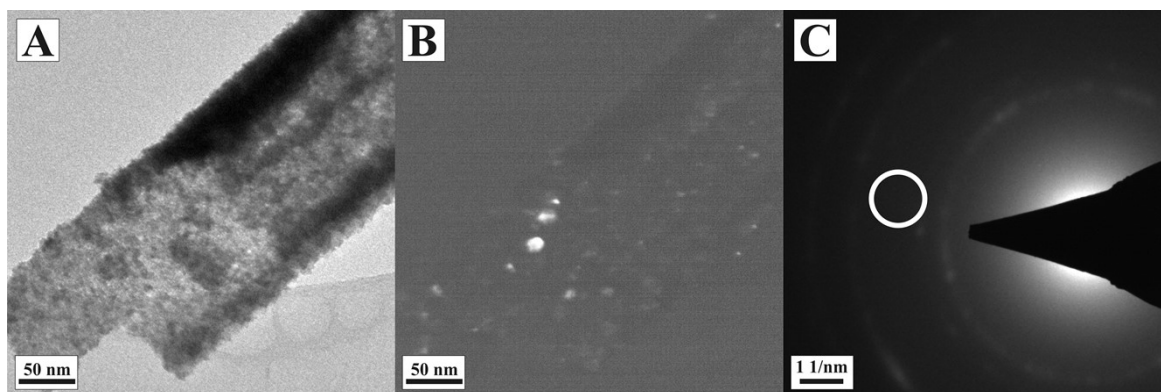


Fig.S5 (A) TEM-BF and (B) TEM-DF images of hierarchical tube-like CeO₂ and (C) SAED pattern with position of the aperture (between the rings CeO₂200 and CeO₂220).

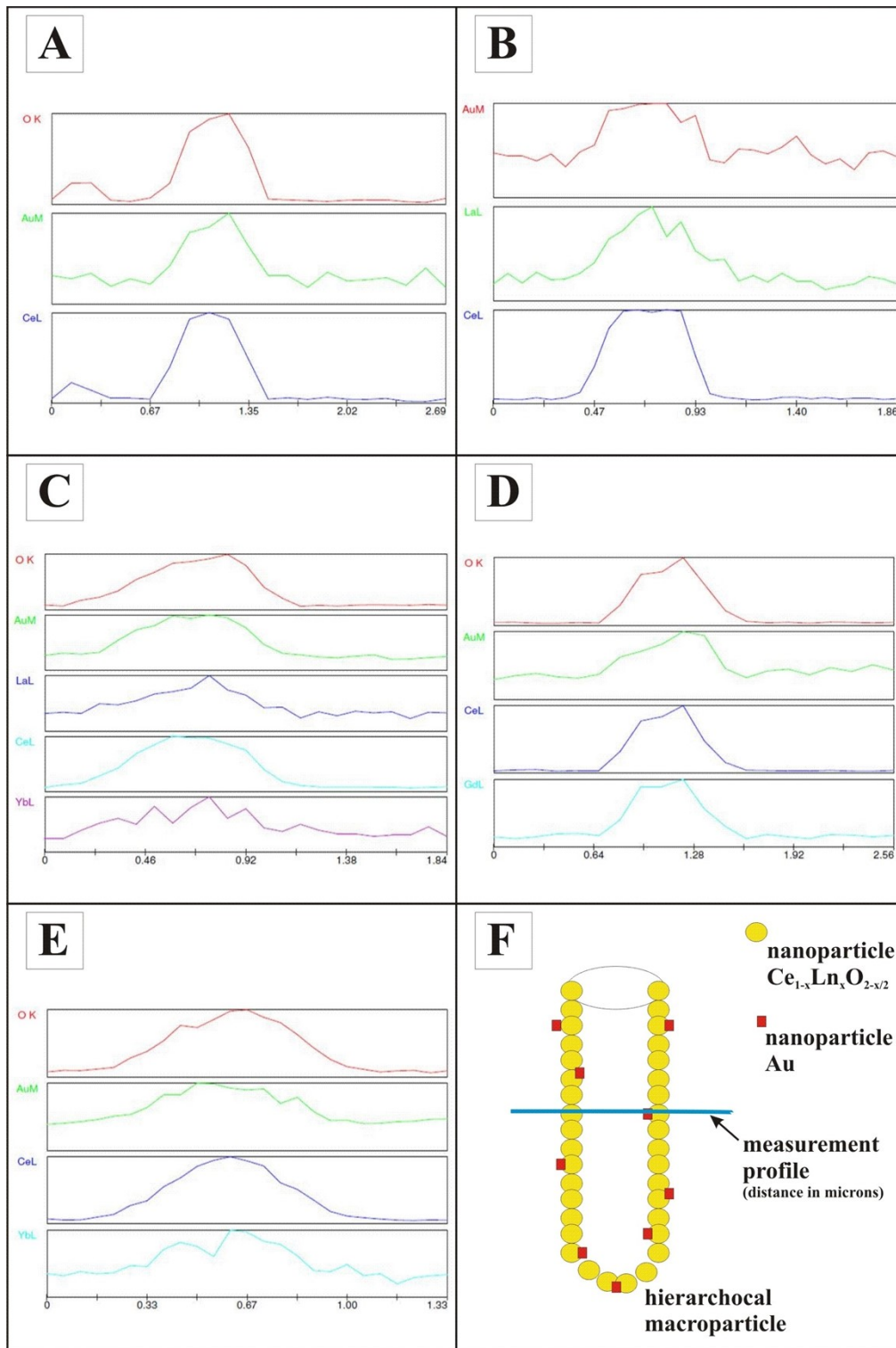


Fig.S6 Line profile of SEM-EDX of hierarchical tube-like (A) Au/CeO₂, (B) Au/Ce_{0.9}La_{0.1}O_{1.95}, (C) Au/Ce_{0.9}La_{0.05}Yb_{0.05}O_{1.95}, (D) Au/Ce_{0.9}Gd_{0.1}O_{1.95}, (E) Au/Ce_{0.9}Yb_{0.1}O_{1.95}, (F) model of measurement.