Supporting Information

Correlations between Oxygen Uptake and Vacancy Concentration in Pr Doped CeO_2

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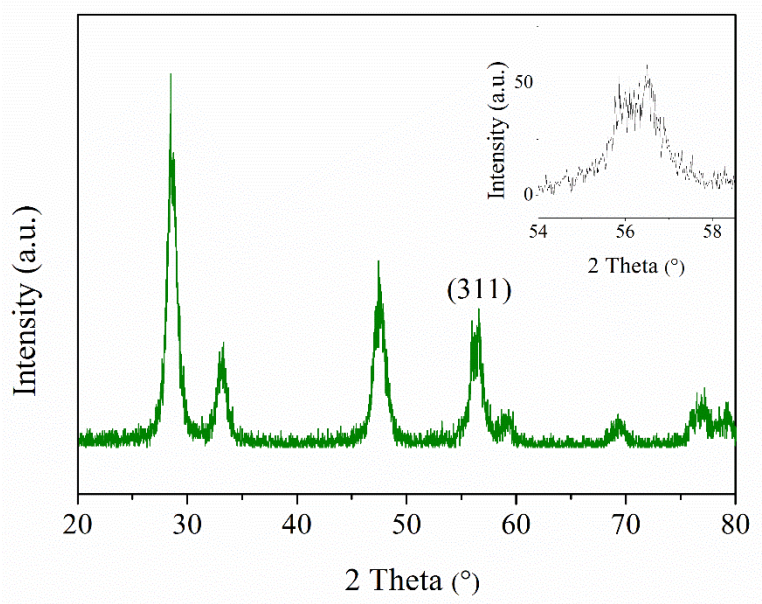

Figure S1. XRD pattern of the Pr-CeO2 material with 30% Pr and observable phase segregation evident by the (311) plane as shown in the inset image.

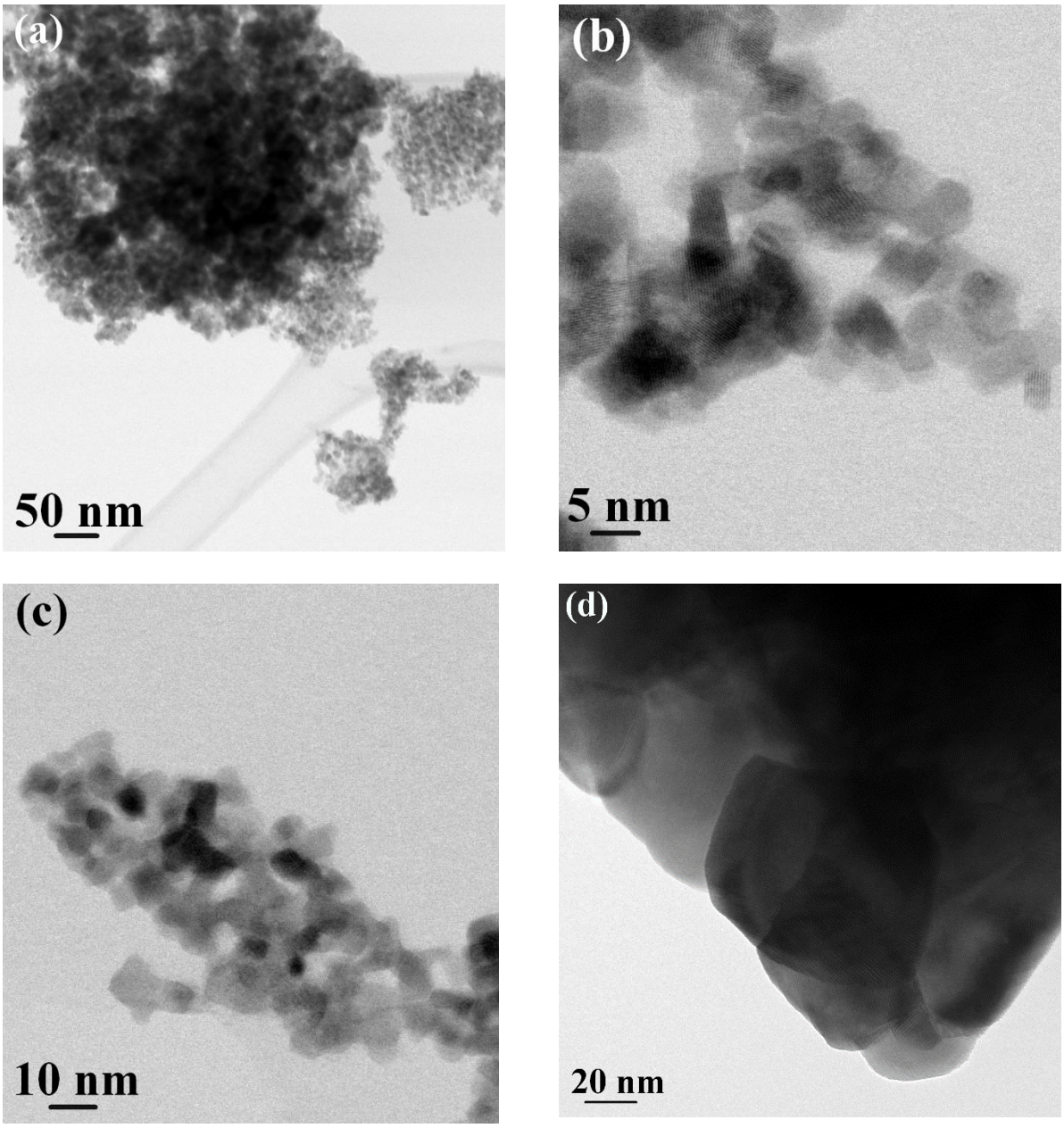

Figure S2. STEM images of the Pr-CeO_2 mixed oxides with Pr = (a) 10%, (b) 15%, (c) 20%, and (d) TEM image of $PrO_{2-\delta}$.

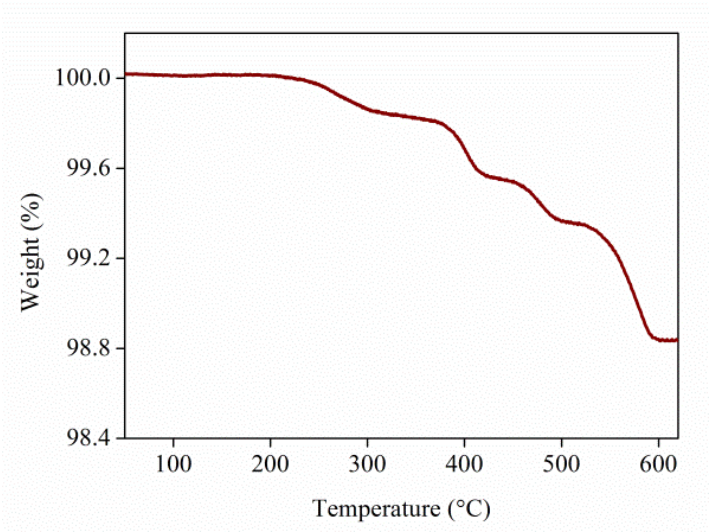

Figure S3. TGA profile of $PrO_{2-\delta}$ showing a weight loss of 1.2% at 600 °C.[1]

Table S1. Average EELS intensity ratios for CeO_2 and Pr-CeO_2

Sample	Ce I_{M5}/I_{M4}	Std. Error	O I_B/I_C	Std. Error
CeO_2	0.68	0.01	0.68	0.01
$Ce_{0.9}Pr_{0.1}O_2$	0.69	0.01	0.70	0.01
$Ce_{0.85}Pr_{0.15}O_2$	0.68	<0.01	0.74	<0.01
$Ce_{0.8}Pr_{0.20}O_2$	0.69	0.01	0.76	0.01

References

(1) D'Angelo, A. M.; Webster, N. A. S.; Chaffee, A. L. Vacancy generation and oxygen uptake in Cu doped Pr-CeO_2 mixed oxides using neutron and *in-situ* X-ray diffraction. *Inorg. Chem.* **2016,** *55*, 12595-12602.