Temperature Reversible Synergistic Formation of Cerium Oxyhydride and Au Hydride: a combined XAS and XPDF study

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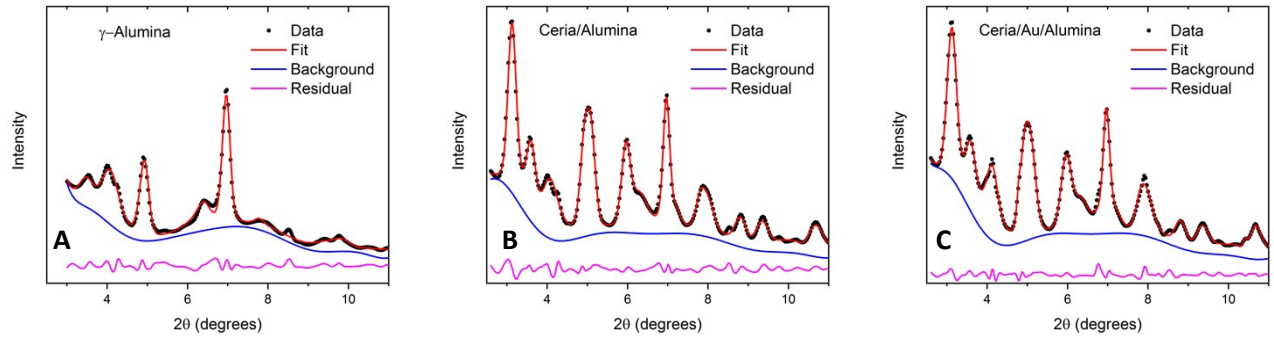
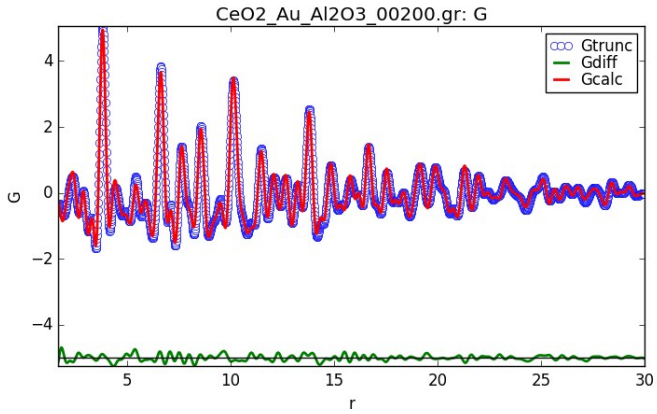


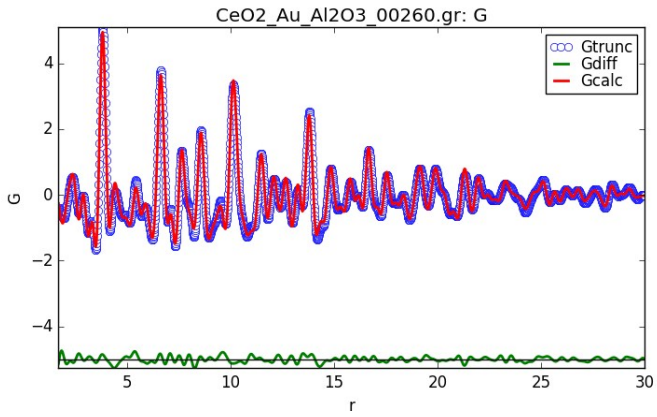
S 1 Rietveld refinement of the XRD patterns for A) γ-alumina, B) Ceria/Alumina, C) Ceria/Au/Alumina samples

T 1 Table of refined phase fractions as estimate of sample constitution

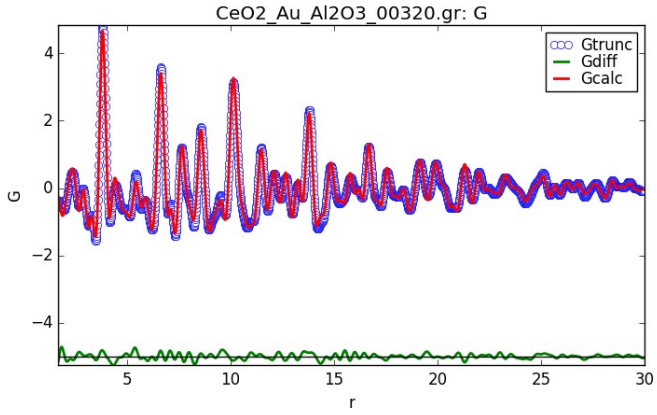
Sample	Alumina Fraction (%)	Ceria Fraction (%)	Au Fraction (%)
γ-alumina	100	-	-
ceria/alumina	85	15	-
ceria/au/alumina	83	16	1



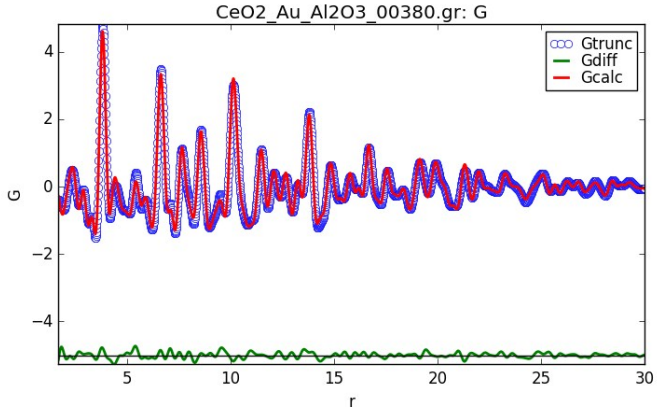
S 2 Example fit to XPDF pattern for the ceria/au/alumina sample at 300 K



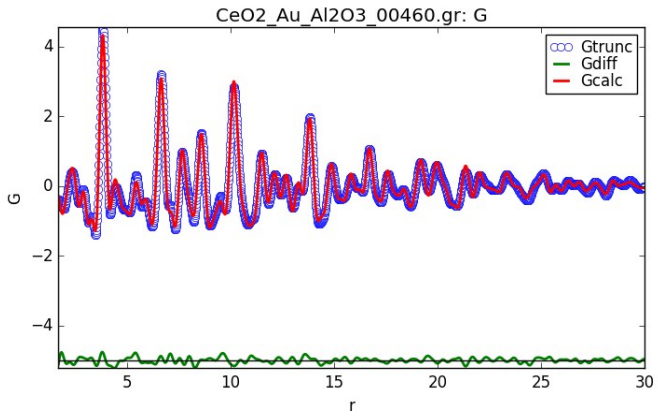
S 3 Example fit to XPDF pattern for the ceria/au/alumina sample at 350 K



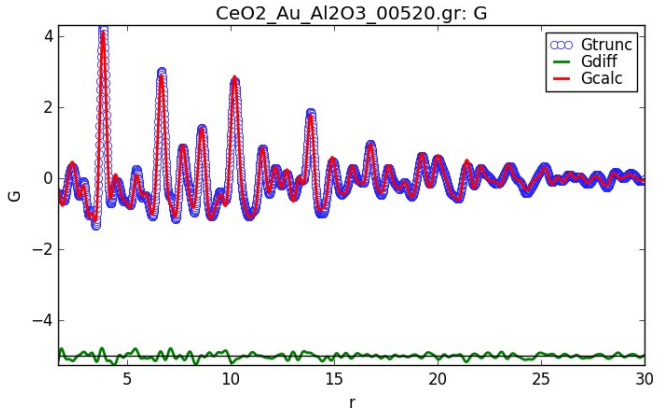
S 4 Example fit to XPDF pattern for the ceria/au/alumina sample at 400 K



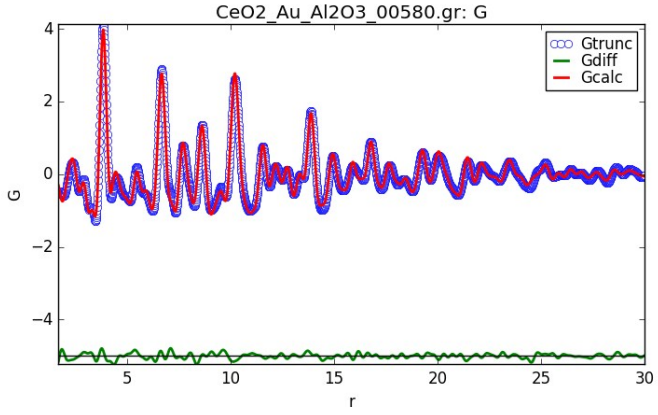
S 5 Example fit to XPDF pattern for the ceria/au/alumina sample at 450 K



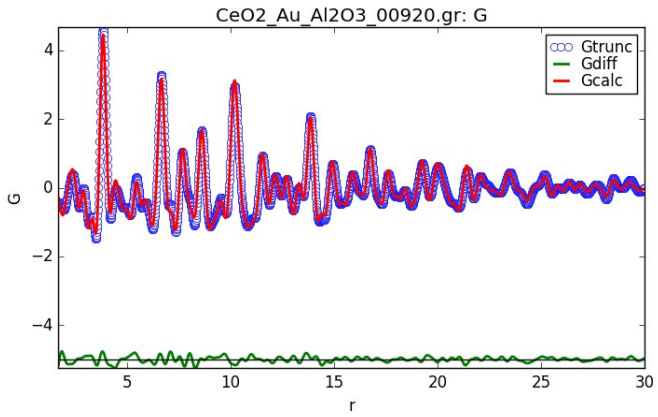
S 6 Example fit to XPDF pattern for the ceria/au/alumina sample at 500 K



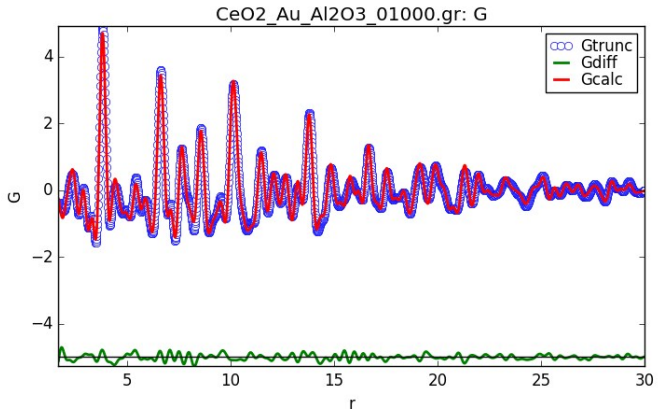
S 7 Example fit to XPDF pattern for the ceria/au/alumina sample at 550 K



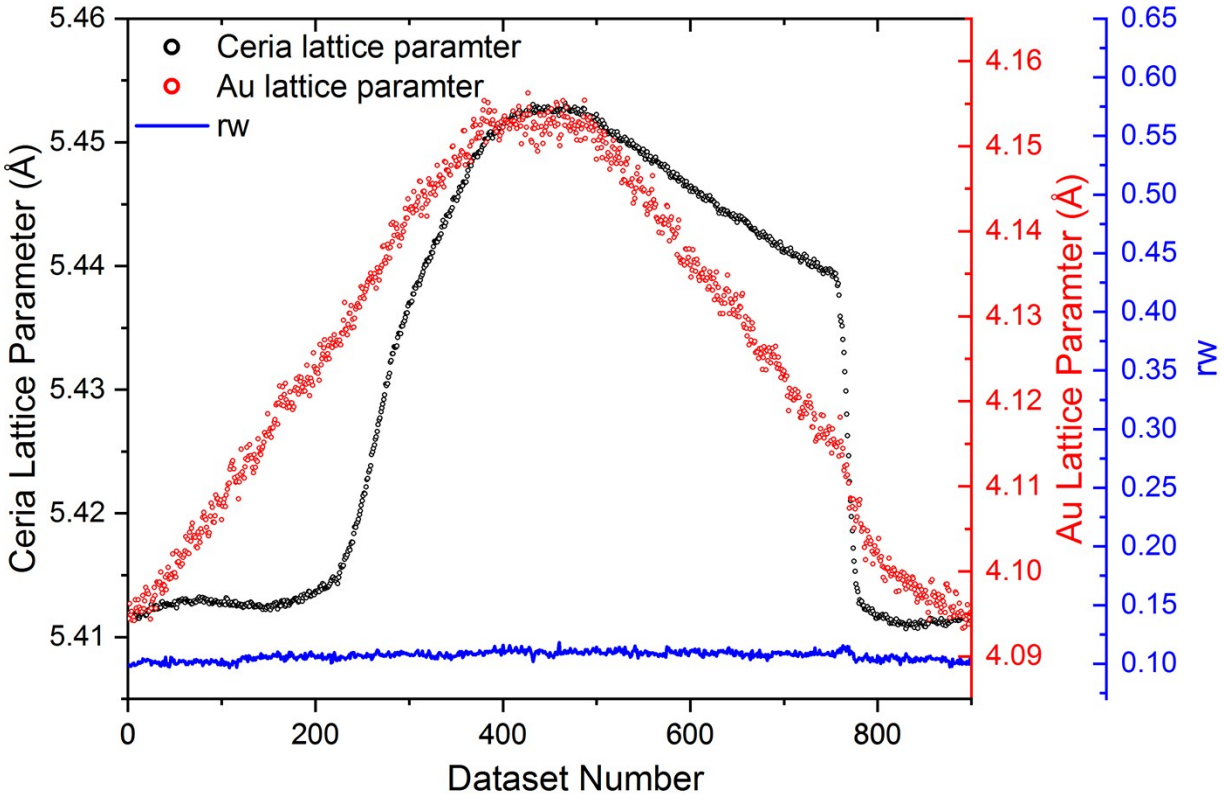
S 8 Example fit to XPDF pattern for the ceria/au/alumina sample at 600 K



S 9 Example fit to XPDF pattern for the ceria/au/alumina sample at 380 K



S 10 Example fit to XPDF pattern for the ceria/au/alumina sample at 350 K



S 11 Plot showing the refined ceria and au lattice parameters along with the refined per dataset fit residual rw.