

Supplementary information

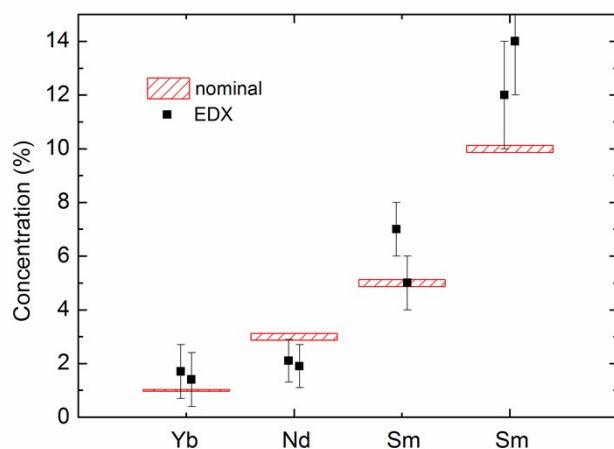


Figure S1 – Nominal and measured dopant concentration of the PLD targets. The EDX analysis has been performed at 500x magnification and the acquisition time ranged between 1 and 3 minutes. The thickness of the horizontal bars represents the error due to the weighting procedure. The error bars of the EDX data are those associated with the SEM statistics. An additional source of error is the superposition of the dopant M and L lines with those of Ce in the EDX spectra.

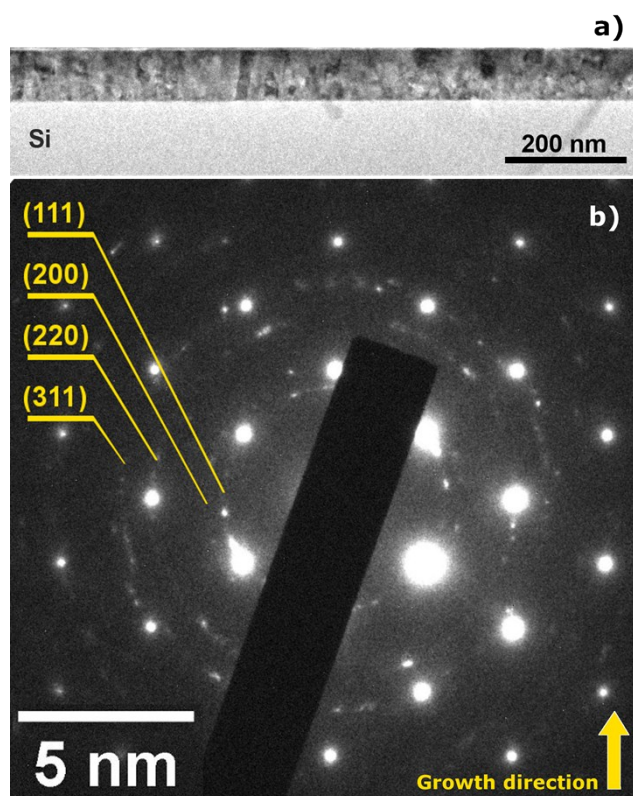


Figure S2 – a) Cross section low resolution TEM image and b) corresponding SAED pattern recorded on a CeO₂:Nd film deposited on (100) c-Si substrate.

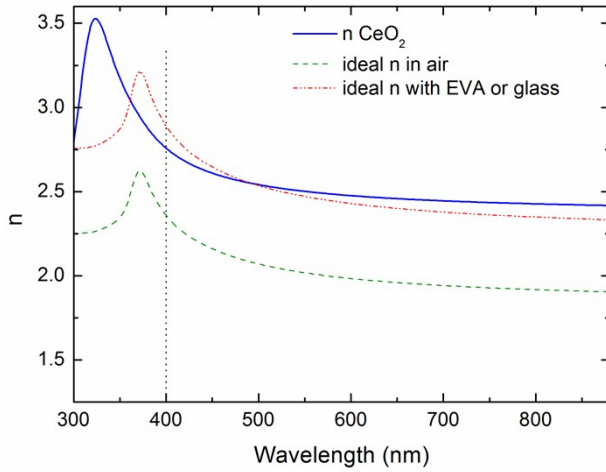


Figure S3 – Typical refractive index of our RE:CeO₂ films. The ideal refractive index for anti-reflection properties on Si wafers is plotted for reference in the case of an “air” application and an encapsulated application. The refractive index of CeO₂ matches very well the ideal anti-reflection coating on silicon and is therefore compatible with photovoltaics. The optimal refractive index has been calculated as

$$n_{opt} = \sqrt{n_{TW} \cdot n_{Si}}, \text{ where } n_{TW} \text{ is the refractive index of the top window.}$$