

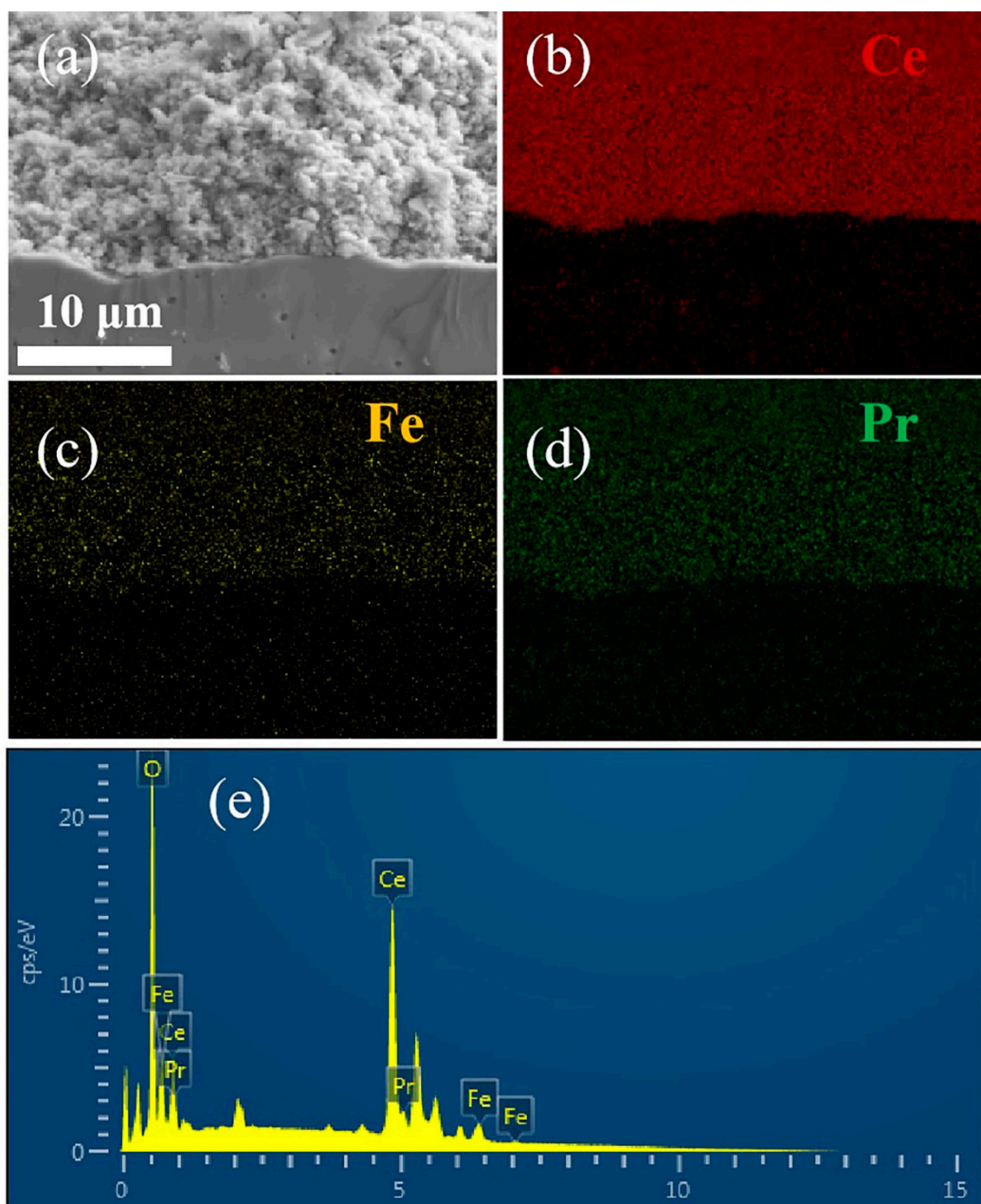
## Supplementary Materials

### Enhancing the potentiometric H<sub>2</sub> sensing of Pr<sub>0.1</sub>Ce<sub>0.9</sub>O<sub>2-δ</sub> using Fe<sub>2</sub>O<sub>3</sub> surface modification

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**Figure S1.** (a–d) Cross-section EDS mapping for PCO-Fe<sub>2</sub>O<sub>3</sub>; (e) Surface EDS quantification results of PCO-Fe<sub>2</sub>O<sub>3</sub>.

**Table S1.** Comparison of H<sub>2</sub> sensing characteristics of PCO-Fe<sub>2</sub>O<sub>3</sub> with literature data.

SE material	Temp. (°C)	Conc. (ppm)	Re-sponse*(mV)	Detecting Range (ppm)	Sensitivity (mV/decade)	Reference
ITO	535	5000	135–167	1000–20000	89.24	[33]
ZnO(+Ta <sub>2</sub> O <sub>5</sub> )	500	100	600	100–400	~ 189	[34]
ZnWO <sub>4</sub>	600	30000	180	15000–30000	0.22	[35]
ZrSiO <sub>4</sub> (+Au)	500	100	25	20–400	~ 169	[15]
MnWO <sub>4</sub>	500	960	110	80–960	78.07	[36]
CdWO <sub>4</sub>	518	30000	270	5000–30000	182	[37]
CoWO <sub>4</sub>	450	120	68	80–960	325.6	[38]
LSCF	450	100	55	100–1000	90	[14]
SnO <sub>2</sub> nanofibers	450	1000	289.1	140–2000	158.6	[28]
LSF	450	1000	196.08	100–1000	127	[16]
PCO-Fe <sub>2</sub> O <sub>3</sub>	450	1000	184.3	20–1000	76.9	This work

\* absolute values

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