

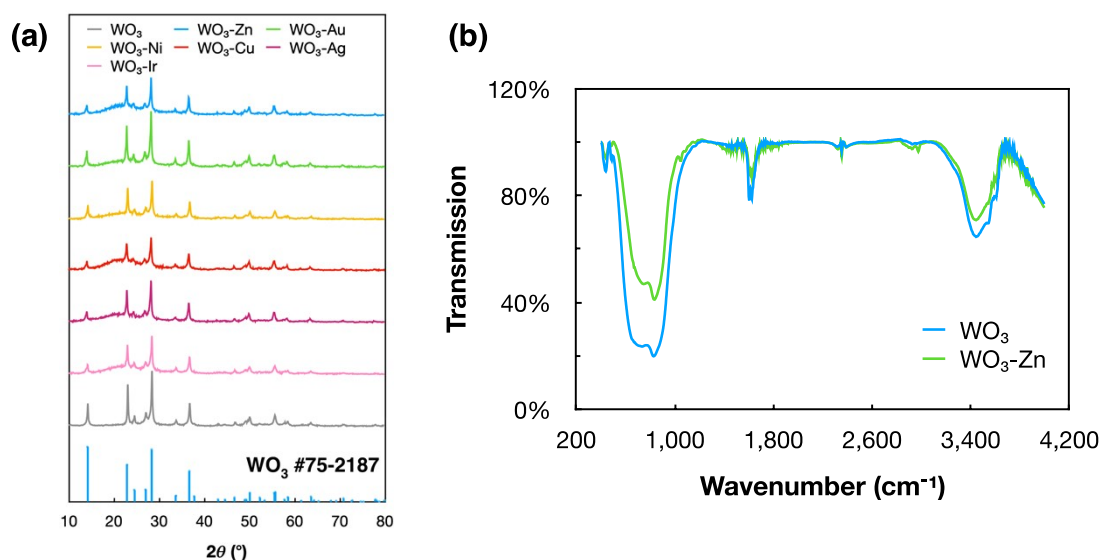
## Proton-insertion-pseudocapacitance of tungsten bronze tunnel structure enhanced by transition metal ions anchoring

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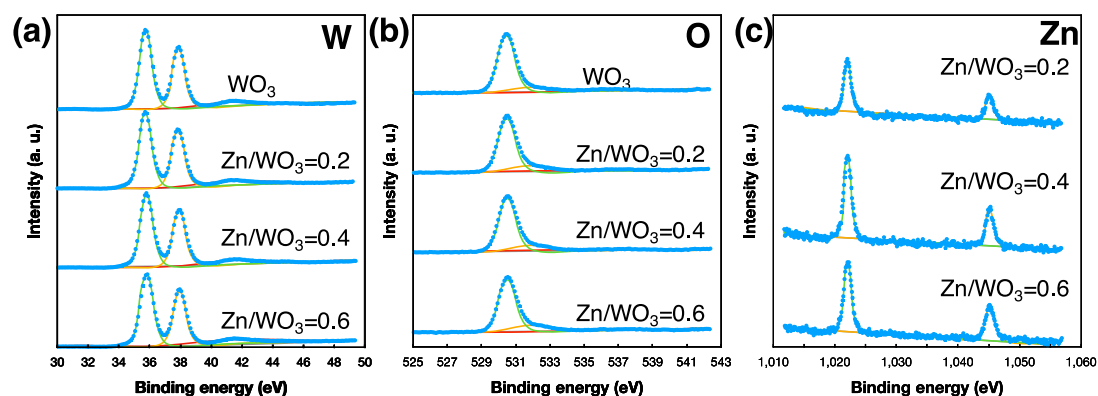
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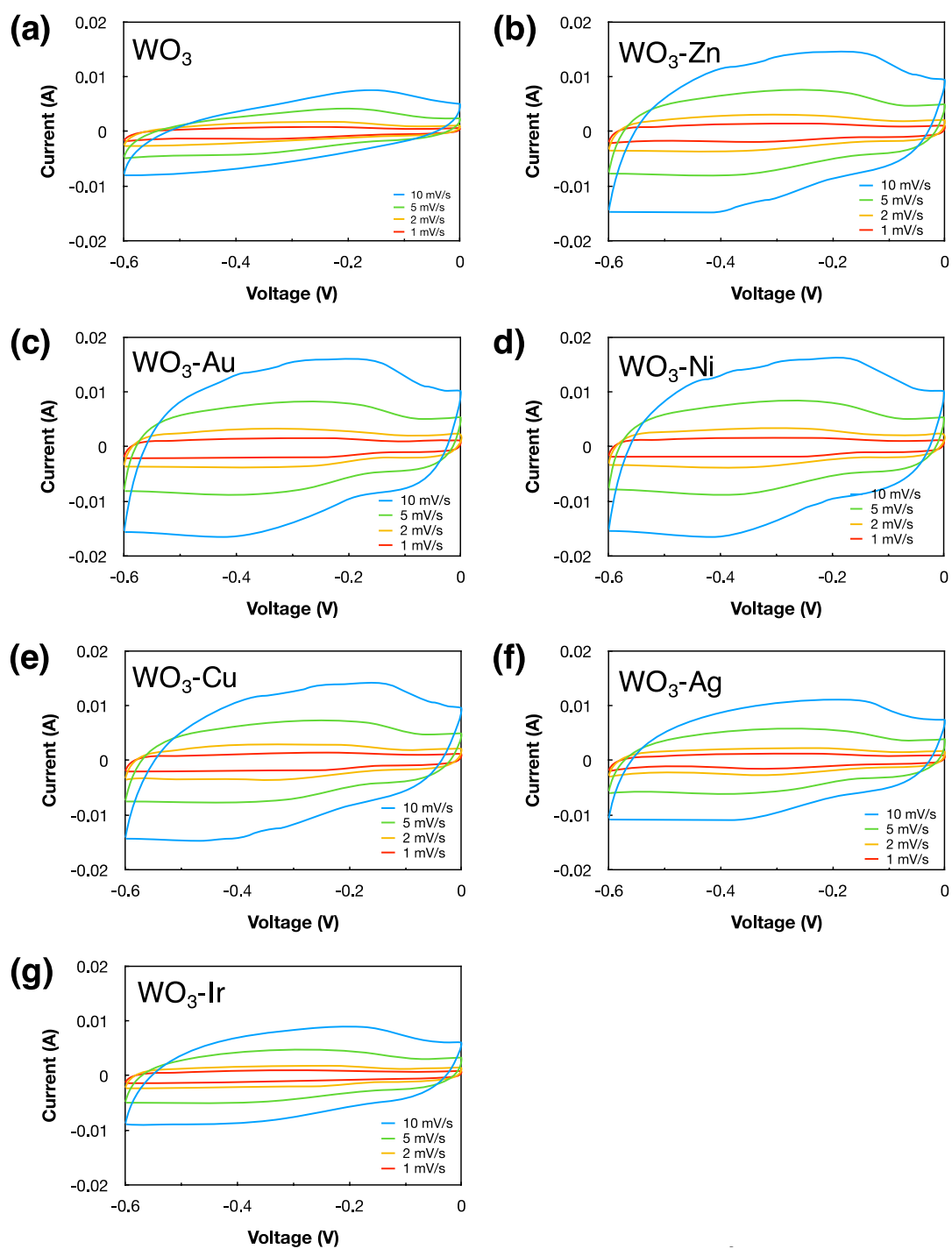
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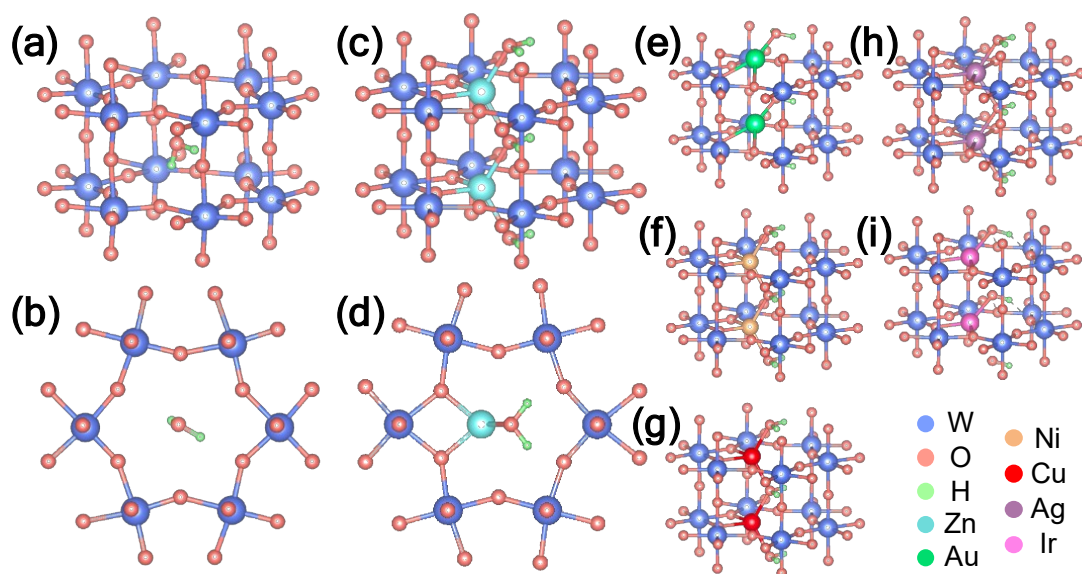
**Figure S1.** (a) XRD results of WO<sub>3</sub> and WO<sub>3</sub>-TM. (b) IR spectra of the as-prepared WO<sub>3</sub> and WO<sub>3</sub>-Zn.



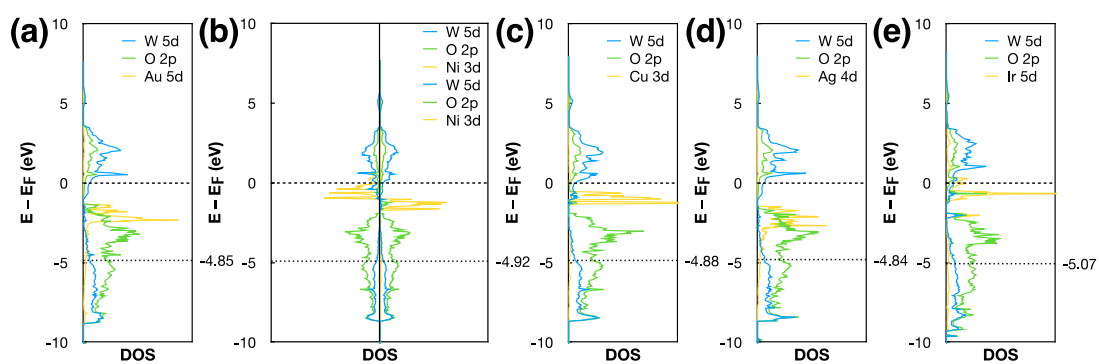
**Figure S2.** XPS of (a) W, (b) O and (c) Zn of WO<sub>3</sub>-Zn with different ratios.



**Figure S3.** (a-g) The CV of  $\text{WO}_3$  and derivatives at different scan rates.



**Figure S4.** Optimized structure of  $\text{WO}_3$  and  $\text{WO}_3\text{-TM}$  with  $\text{H}_2\text{O}$  inside the channel. The ratio of  $\text{WO}_3$ , TM and  $\text{H}_2\text{O}$  is determined by TGA and ICP.



**Figure S5.** DOS of  $\text{WO}_3\text{-TM}$ .

**Table S1.** ICP of  $\text{WO}_3\text{-Zn}$ . The designed ratio is  $\text{Zn}/\text{WO}_3$  in atom during synthesis.

Samples	Designed	ICP
$\text{WO}_3\text{-Zn}_{0.2}$	0.2	0.21
$\text{WO}_3\text{-Zn}_1$	1	0.41
$\text{WO}_3\text{-Zn}_5$	5	0.59