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RuO₂ Photodeposited on W-doped and Cr-doped TiO₂ Nanotubes with Enhanced Photoelectrochemical Water Splitting and capacitor Properties

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Fig. S1. SEM top view of RWT7 sample (a) and the cross section view of RWT8 sample (b)



Fig. S2. EDX mapping of RCT1 (a) and RWT1 (b) samples







LSV plots of all samples in the presence and absence of light were provided in Fig. S4. In addition, the LSV plots of all samples under illumination of 35-W Xenon lamp were shown in Fig. S5. The CA behaviour during 240 s was detected via many on-off cycles which shown in Fig. S6. This result indicates that all samples are stable and the photocurrent is quite reversible.





Fig. S4. LSV curves of RCT and RWT samples in dark and light, measurements were performed in a three-electrode configuration cell in KOH (1 M) aqueous solution containing 5 vol% ethylene glycol, from 0.5 V to +2.5 V vs. RHE at a scan rate of 10 mVs⁻¹ under illumination of 35-W Xenon lamp.



Fig. S5. LSV curves of RCT and RWT samples under illumination of 35-W Xenon lamp, measurements were performed in a threeelectrode configuration cell in KOH (1 M) aqueous solution containing 5 vol% ethylene glycol, from 0.5 V to +2.5 V vs. RHE at a scan rate of 10 mVs⁻¹.



Fig. S6. Chronoamperometry (CA) measurements of RCT and (b) RWT samples carried out at 240 s in chopped light irradiation; experiments were carried out in aqueous solution within KOH (1M) and 5 vol% ethylene glycol

Table S1. The calculated total half-lives for RCT and RWT samp	les
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Electrode	total half-lives	Electrode	total half-lives	
RCT1	1.8	RWT1	1.7	
RCT2	1.8	RWT2	1.7	
RCT3	2.2	RWT3	1.6	
RCT4	2.2	RWT4	1.6	
RCT5	2.2	RWT5	1.5	
RCT6	1.8	RWT6	1.6	
RCT7	2.2	RWT7	1.5	
RCT8	2.1	RWT8	1.6	



Fig. S7. CV curves of RCT and RWT samples at different scan rates in KOH (1 M) aqueous solution

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