

Supporting Information

Local Structure Distortion Induced by Ti dopant Boosting the Pseudocapacitance of RuO₂-Based Supercapacitors

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This supporting information includes 6 figures and 1 table.

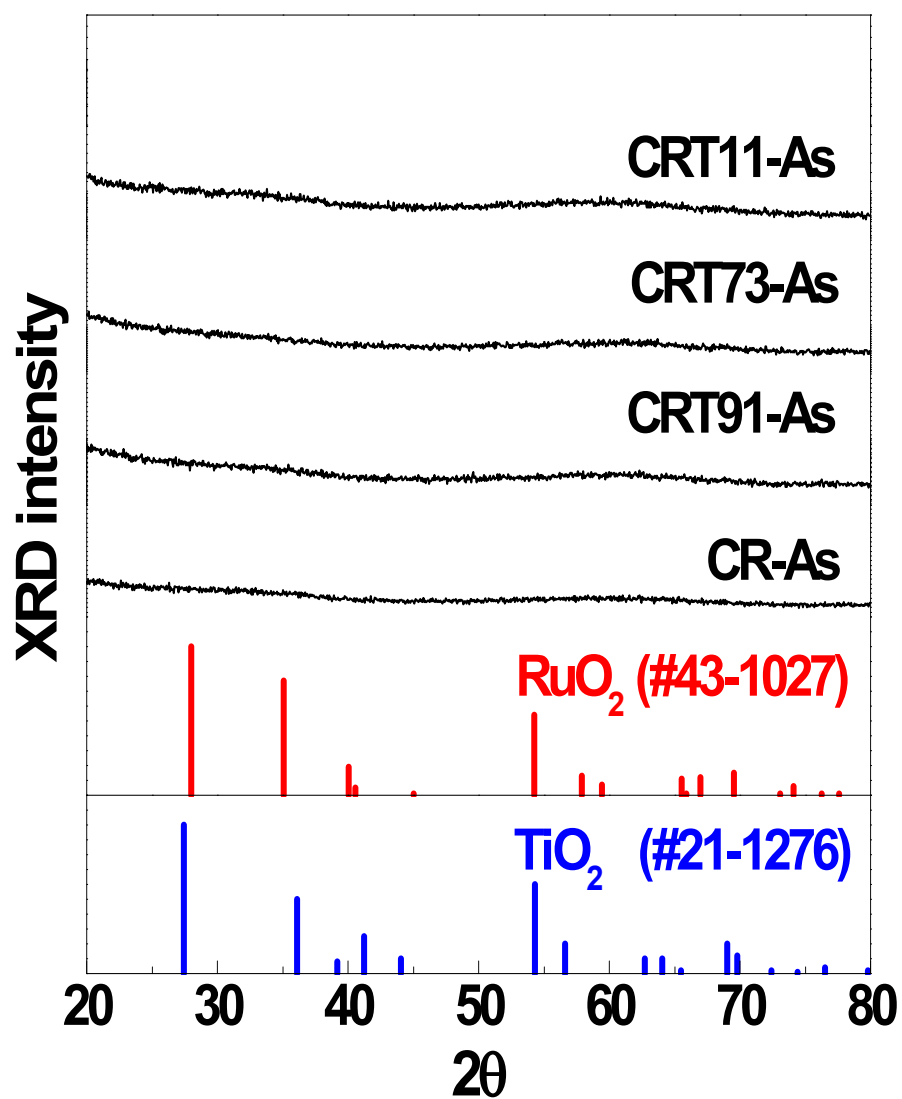


Figure S1 XRD patterns for CRT91-As, CRT73-As, and CRT55-As. The diffraction features of rutile RuO_2 (JCPDS #43-1027) and TiO_2 (JCPDS #21-1276) are provided for a comparison purpose.

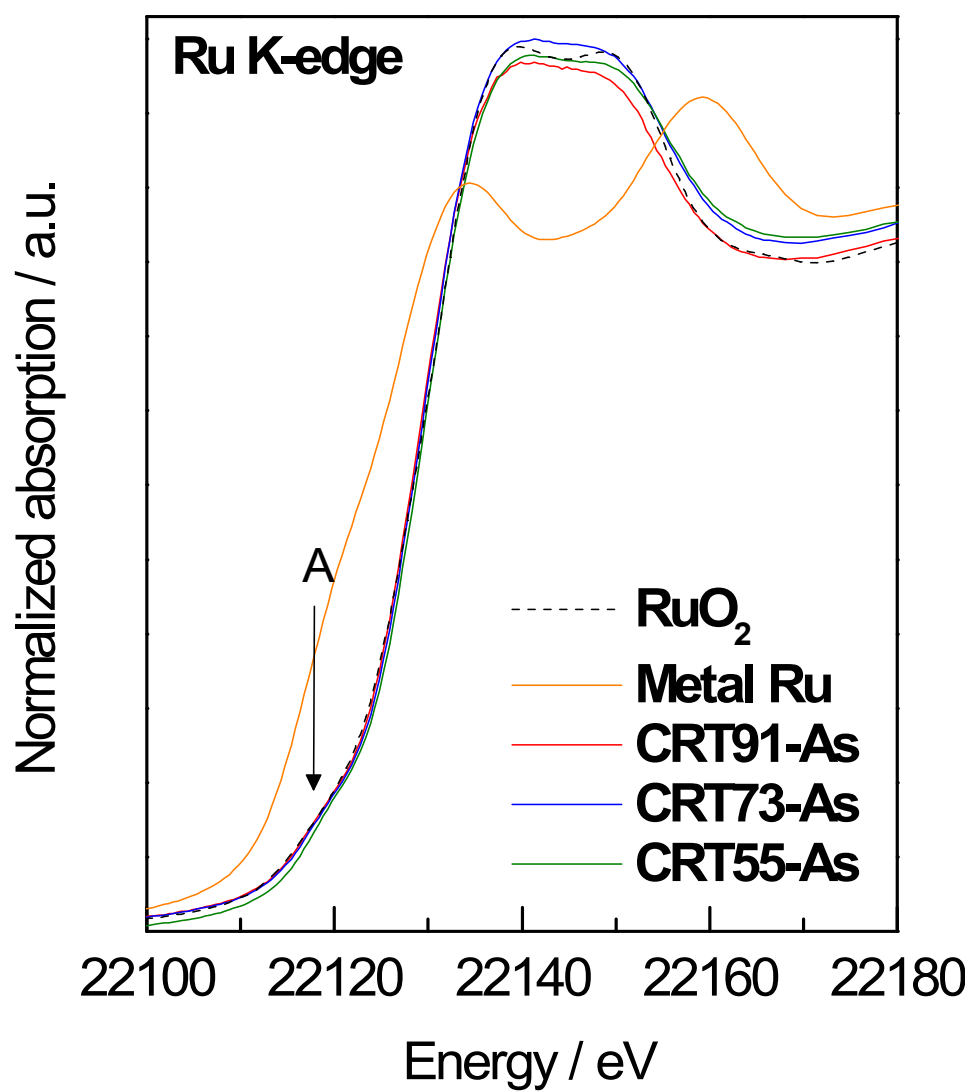


Figure S2 XANES spectra at the Ru *K*-edge for anhydrous RuO_2 , metallic Ru, CRT91-As, CRT73-As, and CRT55-As. All spectra presented here are normalized to the same scale for comparison.

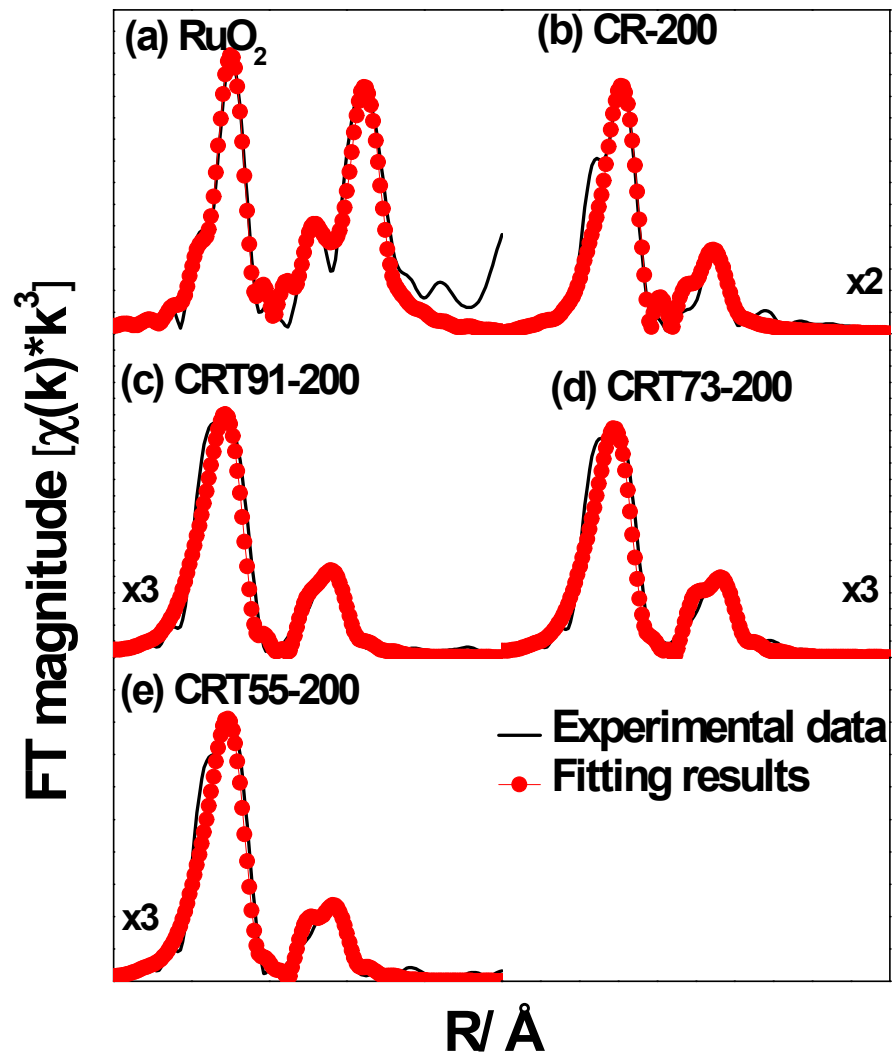


Figure S3 A series of k^3 -weighted Fourier-transformed EXAFS functions at the Ru *K*-edge with their corresponding fits for RuO_2 together with different Ru-Ti atomic ratios oxides treated at 200°C condition. All spectra presented here are normalized to the same scale (see the multiple factor number) for a clear comparison purpose.

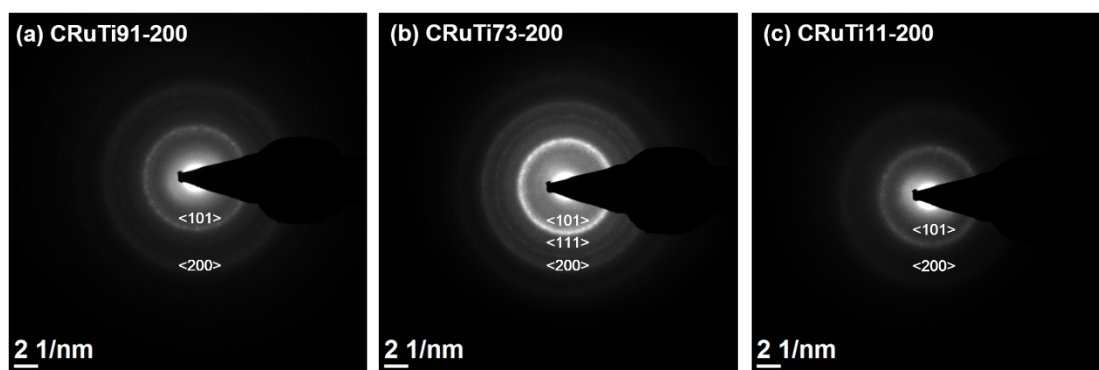


Figure S4 Representative electron diffraction (ED) patterns for three Ru-Ti oxides.

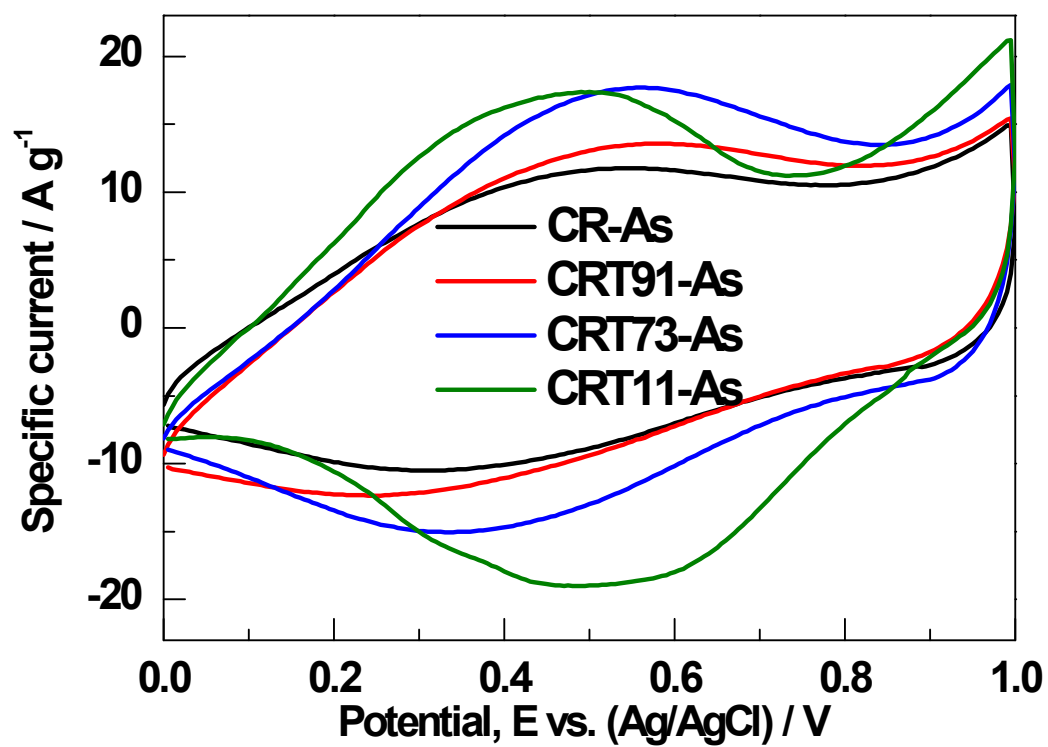


Figure S5 CV curves measured in $0.5 \text{ M H}_2\text{SO}_4$ at 25 mV s^{-1} for CR-As, CRT91-As, CRT73-As, and CRT55-As samples.

Table S1 A comparison of the total specific capacitance and specific capacitance based on RuO_2 for $\text{RuO}_2 \cdot n\text{H}_2\text{O}$ and $\text{Ru}_x\text{-Ti}_{1-x}\text{O}_2 \cdot n\text{H}_2\text{O}$ with and without the thermal treatment at 200°C .

Samples	CR	CRT91	CRT73	CRT55
As-prepared	311.0	358.7	503.1	534.6
Heat treatment at 200°C	569.0	739.1	793.7	655.0
Capacitive performance index of specific capacitance is estimated from the CV curves measured in 0.5 M H_2SO_4 at 25 mV s^{-1}				

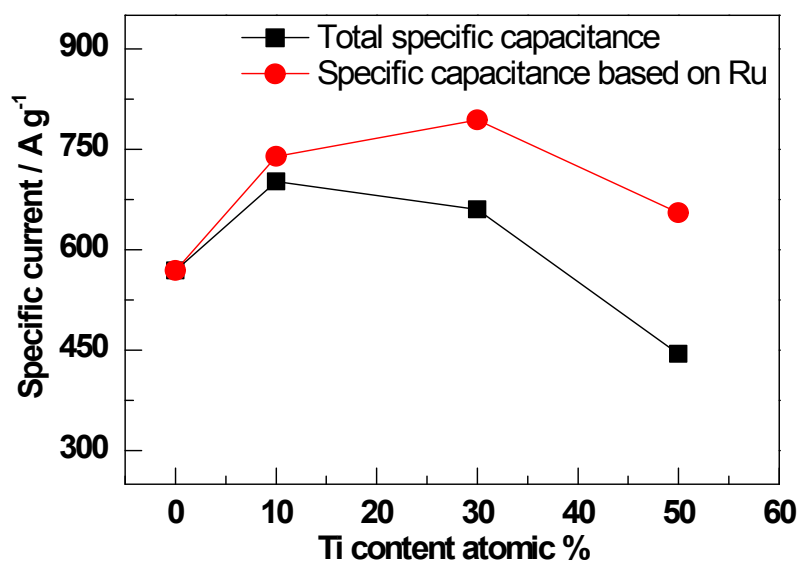


Figure S6 The dependence of total specific capacitance ($C_{S,T}$) and the specific capacitance based on RuO_2 (C_{S,RuO_2}) for various RuTi oxides on the TiO_2 content in the samples.