Supplementary Information

On the Transport Properties of $K_2ZnV_2O_7$

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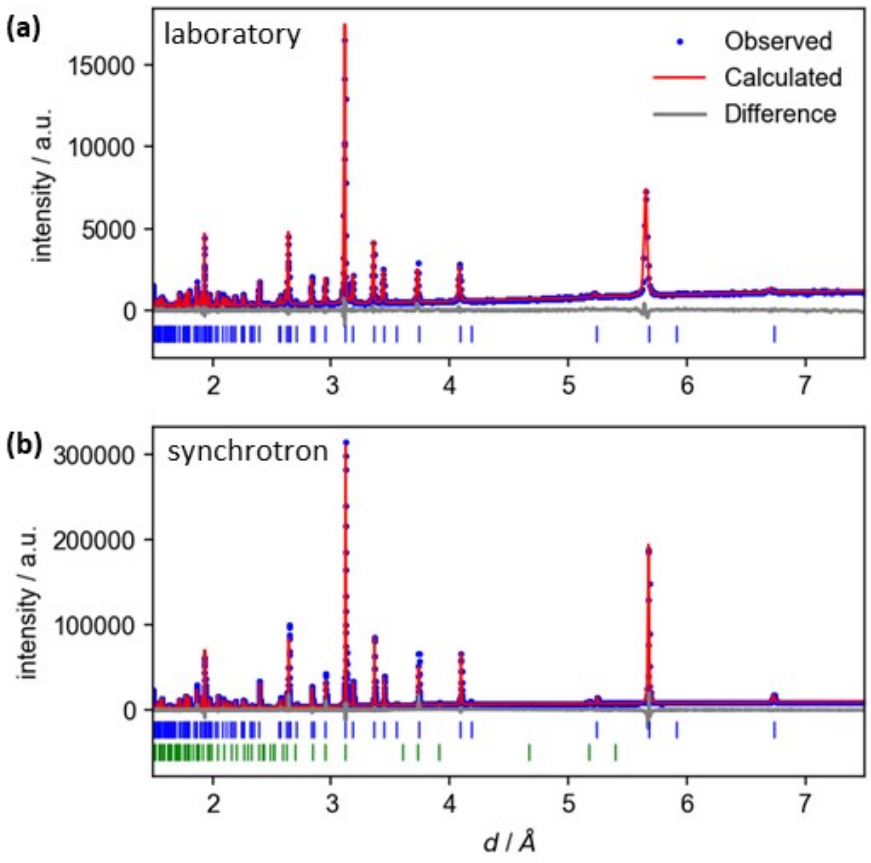

Figure S1: Rietveld fits of PXRD patterns of $K_2ZnV_2O_7$ collected on the same sample using (a) laboratory X-rays and (b) synchrotron X-rays. The observed data are shown by blue dots, the calculated curve in red and the difference curve in grey.

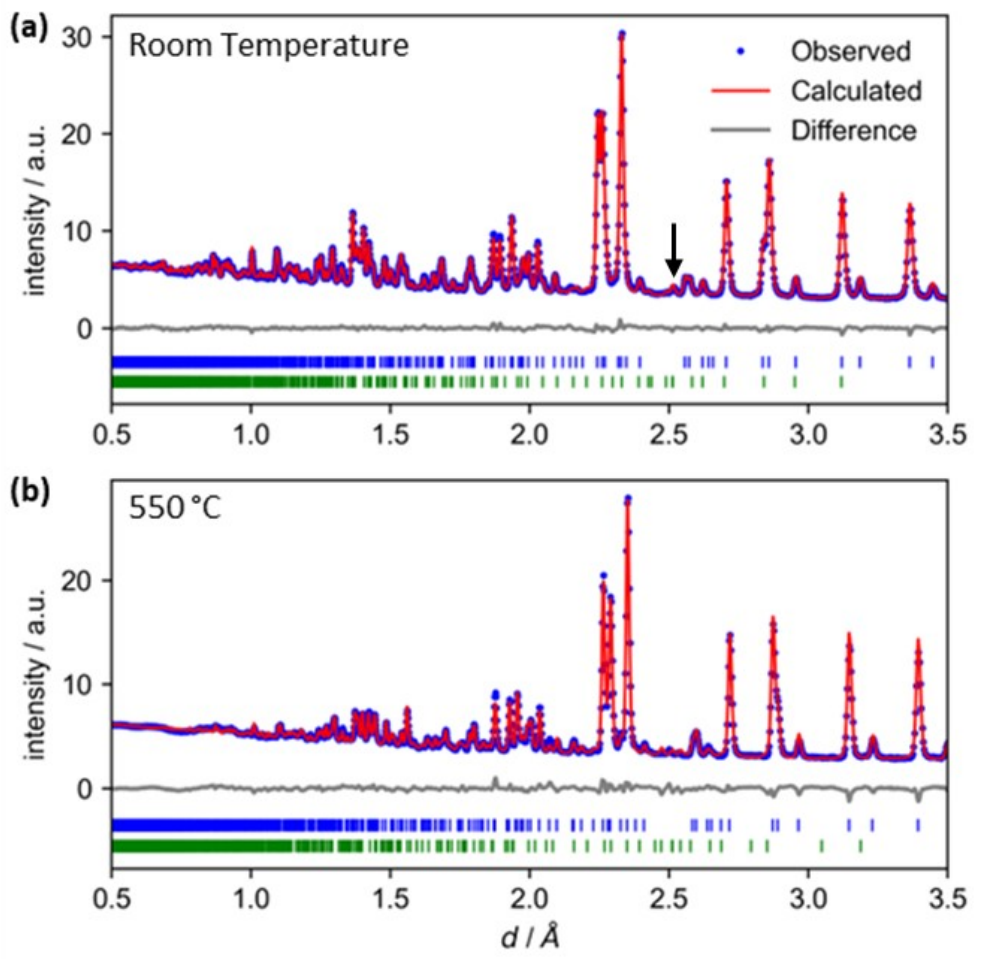

Figure S2: Rietveld fits to the powder neutron diffraction data (a) at room temperature, R_{wp} = 1.59 %, GoF = 1.35; (b) at 550°C, R_{wp} = 1.92 %, GoF = 1.60. The black arrow marks the KVO_3 peak at *d*=2.5 Å.

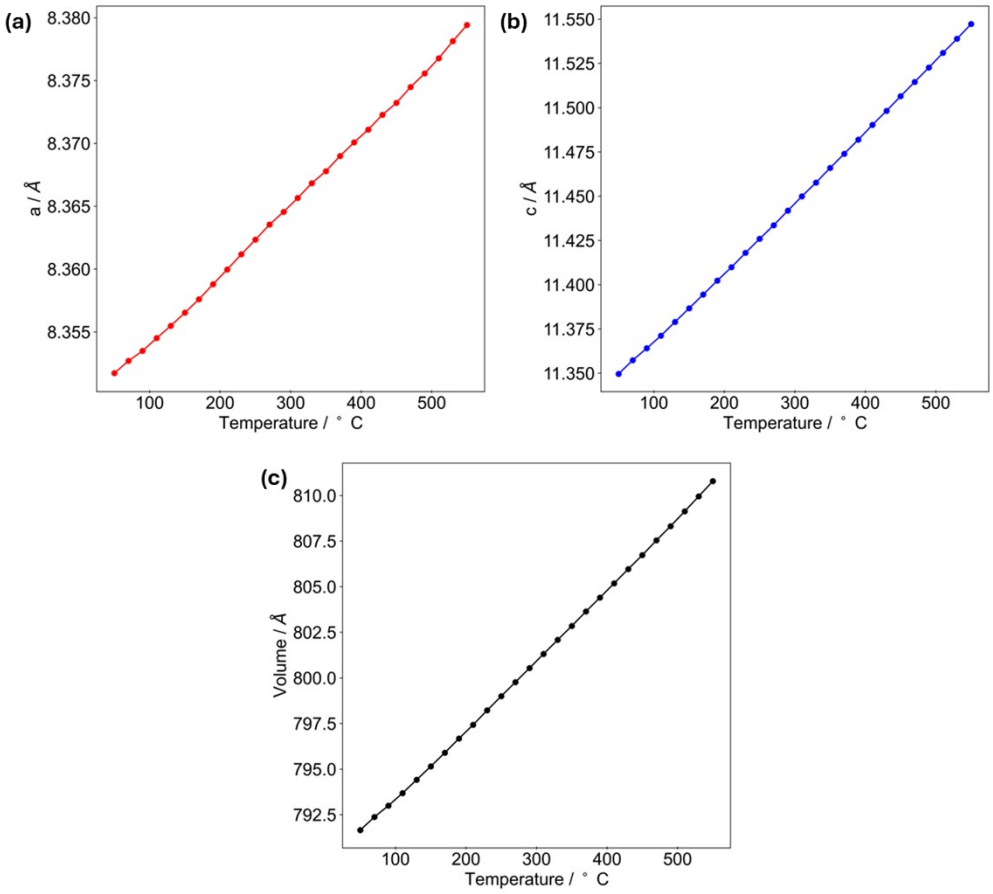

Figure S3: The unit cell parameters of $K_2ZnV_2O_7$ on heating extracted from sequential Rietveld refinement of $K_2ZnV_2O_7$ from variable temperature time of flight neutron power diffraction data collected at Polaris, ISIS. (a) the unit cell parameter *a*, (b) the unit cell parameter *c*, (c) the volume of the unit cell. The error bars are smaller than the data points.

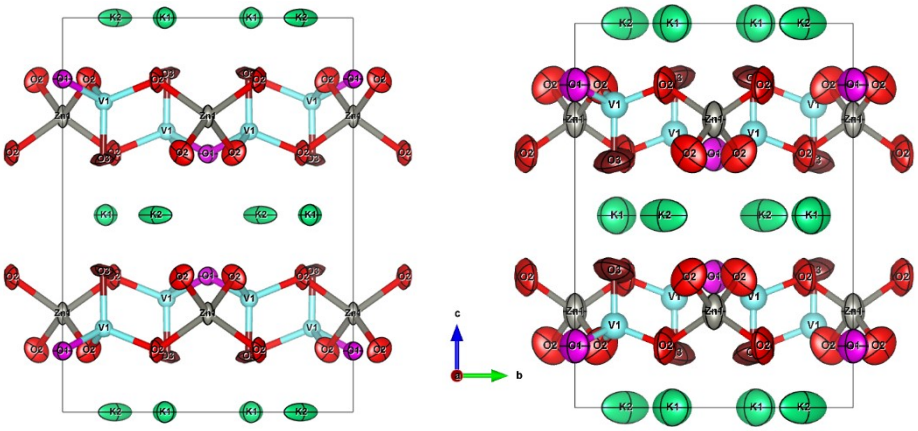

Figure S4: The structure of $K_2ZnV_2O_7$ with anisotropic atomic displacement parameters (ADPs) determined from neutron diffraction data at room temperature (left) and at 550°C (right).

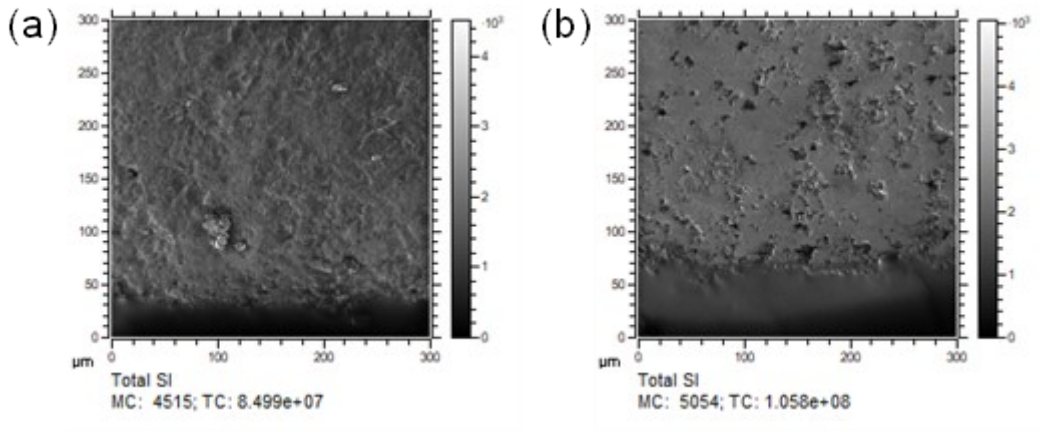

Figure S5: Total secondary ion images of (a) bare and (b) Ag-coated samples, respectively. An amorphous layer is observed in (b).