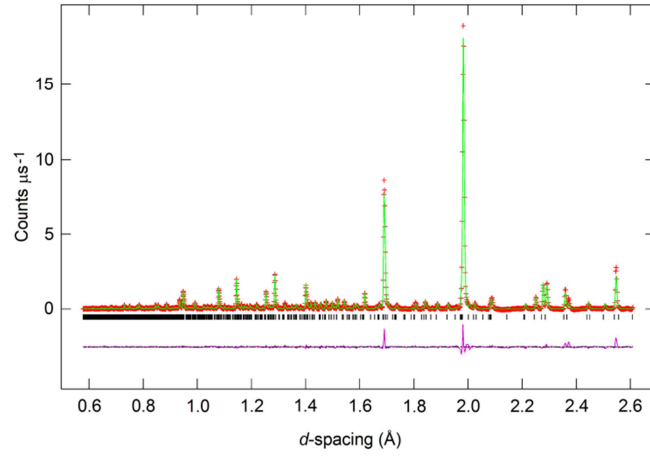


Local structure and conductivity behaviour in Bi₇WO_{13.5}

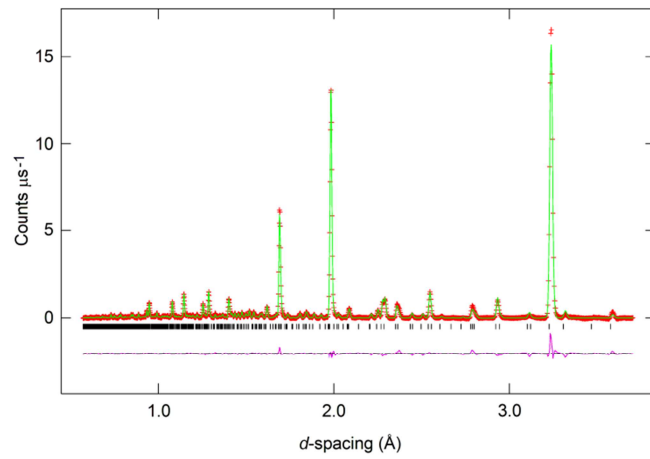
A. Borowska-Centkowska, M. Leszczynska, F. Krok, M. Malys, W. Wrobel, S.Hull and
I. Abrahams

Supplementary Information

(a)



(b)



(c)

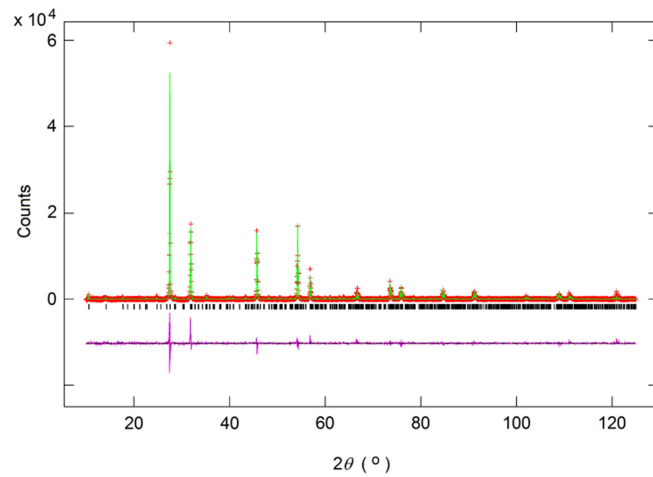
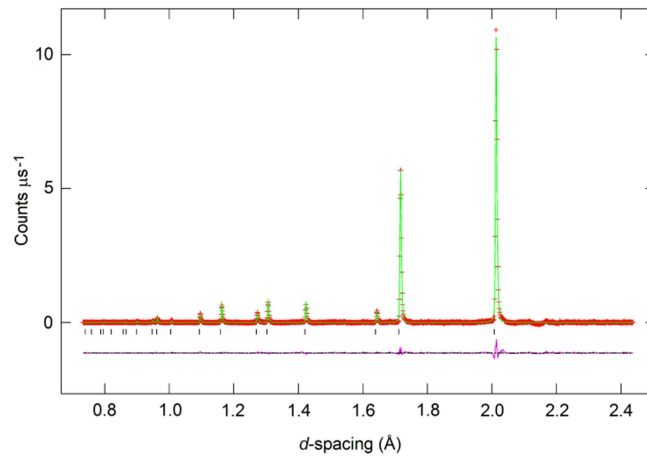
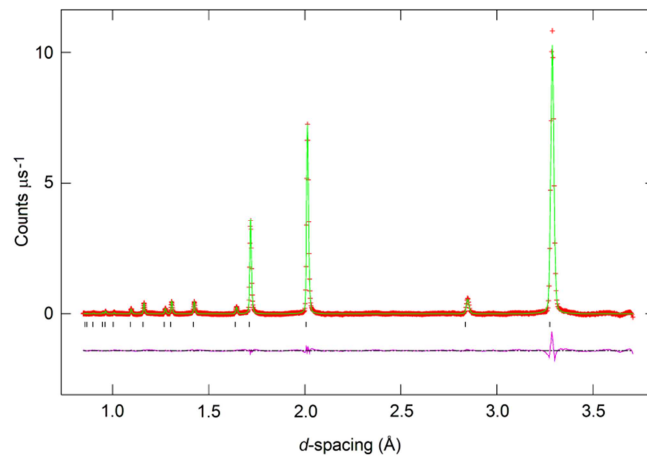


Fig. S1. Diffraction profiles for $\text{Bi}_7\text{WO}_{13.5}$ at room temperature showing (a) neutron back scattering (b) neutron 90° and (c) X-ray data, fitted by conventional Rietveld analysis. Observed (crosses), calculated (line) and difference (lower) profiles are shown, with reflection positions indicated by markers.

(a)



(b)



(c)

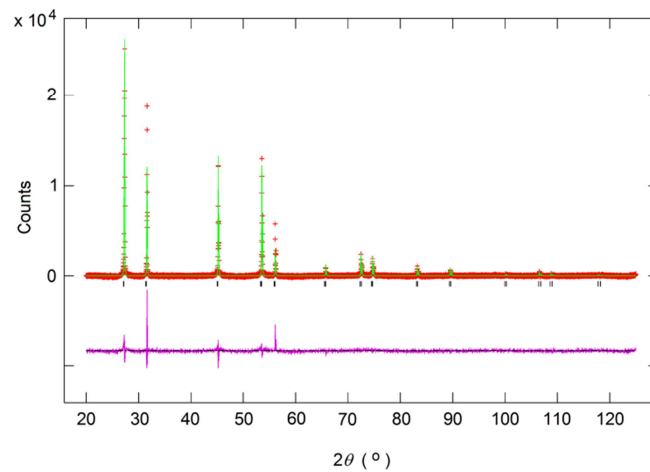
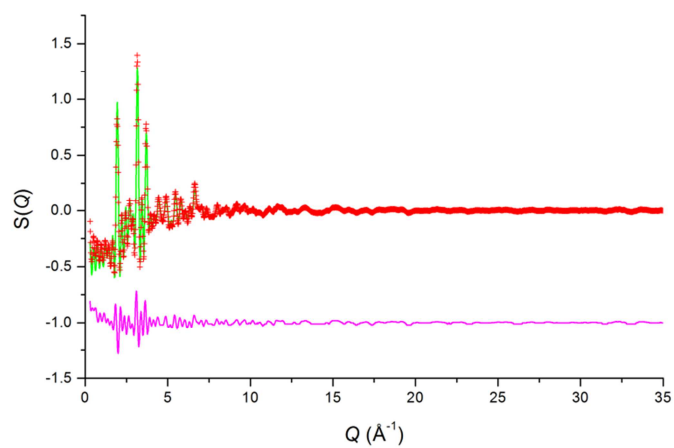


Fig. S2. Diffraction profiles for $\text{Bi}_7\text{WO}_{13.5}$ at 900°C showing (a) neutron back scattering (b) neutron 90° and (c) X-ray data, fitted by conventional Rietveld analysis. Observed (crosses), calculated (line) and difference (lower) profiles are shown, with reflection positions indicated by markers.

(a)



(b)

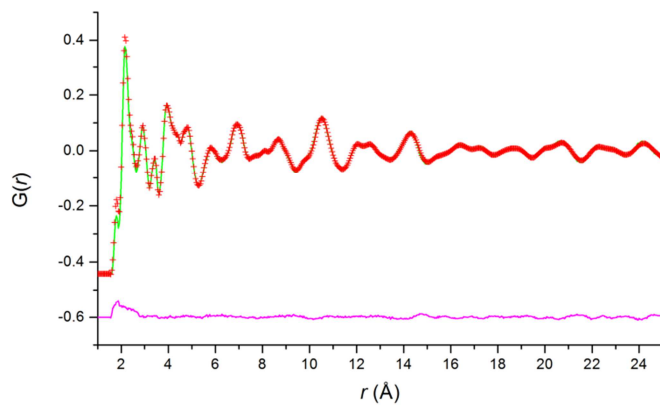
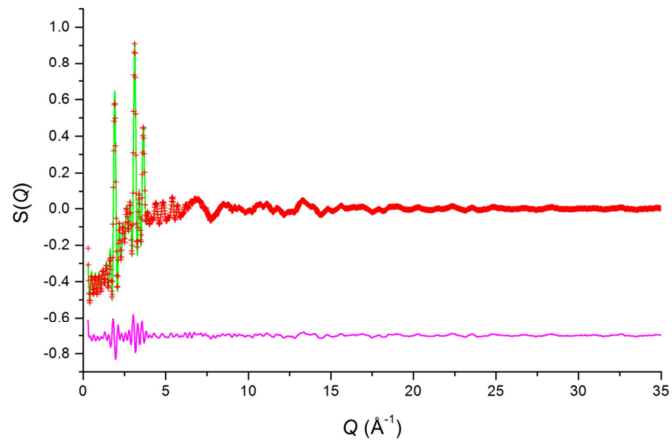


Fig. S3. (a) Neutron total scattering, $S(Q)$, and (b) neutron total pair correlation, $G(r)$, data for $\text{Bi}_7\text{WO}_{13.5}$ at room temperature, fitted by RMC analysis. Observed (crosses), calculated (line) and difference (lower) profiles are shown.

(a)



(b)

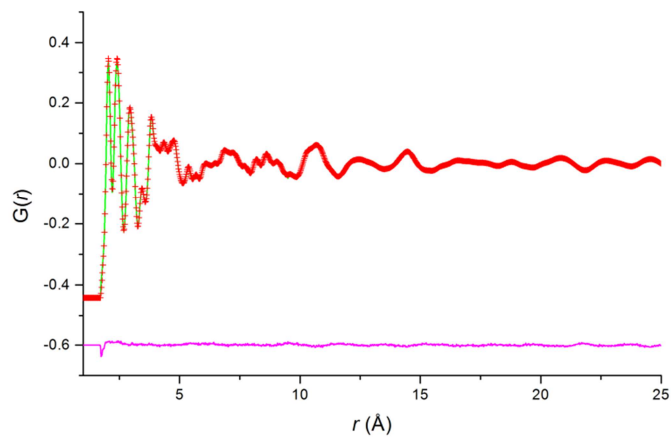
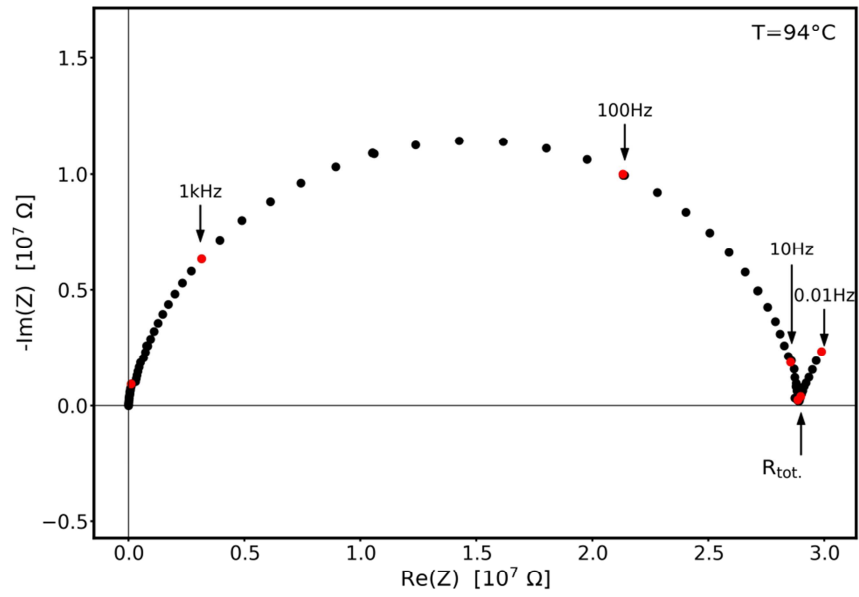


Fig. S4. (a) Neutron total scattering, $S(Q)$, and (b) neutron total pair correlation, $G(r)$, data for $\text{Bi}_7\text{WO}_{13.5}$ at 900 °C, fitted by RMC analysis. Observed (crosses), calculated (line) and difference (lower) profiles are shown.

(a)



(b)

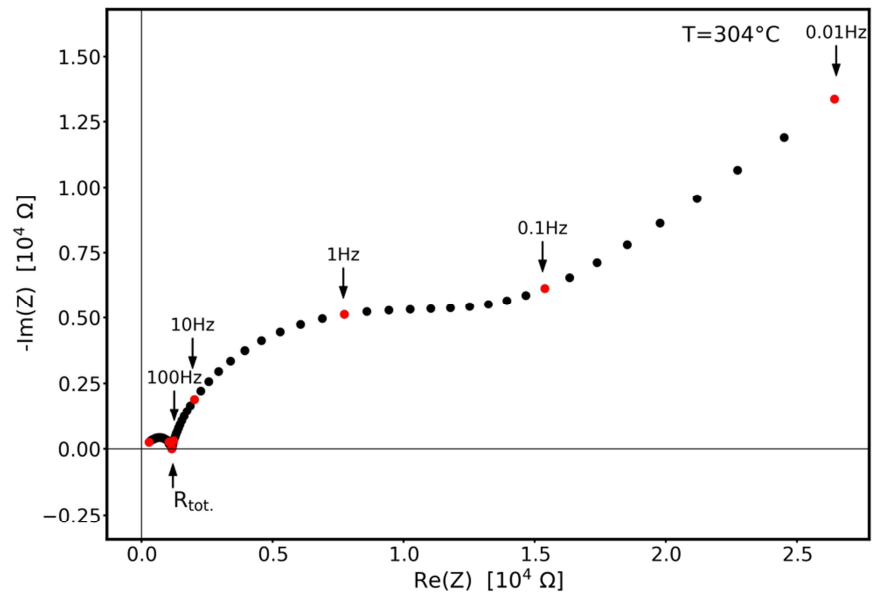


Fig. S5. Representative impedance spectra for $\text{Bi}_7\text{WO}_{13.5}$ at (a) 94°C and (b) 304°C . Selected frequencies are indicated.

Table S1. Contributions of ionic (σ_{ion}) and electronic (σ_{e}) conductivities to total conductivity (σ_{tot}), along with ionic transference number t_{ion} , as functions of temperature for $\text{Bi}_7\text{WO}_{13.5}$.

Temperature [° C]	$\sigma_{\text{tot.}}$ [Scm^{-1}]	$\sigma_{\text{e.}}$ [Scm^{-1}]	$\sigma_{\text{ion.}}$ [Scm^{-1}]	t_{ion}
832	1.9222×10^{-1}	3.0013×10^{-3}	1.8922×10^{-1}	0.984
801	1.7405×10^{-1}	2.1473×10^{-3}	1.7199×10^{-1}	0.988
740	9.9572×10^{-2}	1.0749×10^{-3}	9.8452×10^{-2}	0.989
709	7.7834×10^{-2}	6.9437×10^{-4}	7.7140×10^{-2}	0.991
679	6.1402×10^{-2}	4.5650×10^{-4}	6.0946×10^{-2}	0.993
617	3.3543×10^{-2}	1.9223×10^{-4}	3.3351×10^{-2}	0.994
587	2.4479×10^{-2}	1.1913×10^{-4}	2.4360×10^{-2}	0.995
555	1.7684×10^{-2}	7.1731×10^{-5}	1.7626×10^{-2}	0.996
525	1.2560×10^{-2}	4.2769×10^{-5}	1.2531×10^{-2}	0.997
494	0.8668×10^{-2}	1.5256×10^{-5}	0.8654×10^{-2}	0.998