## FOUNDATIONS

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## Supporting information for article:

Lorentz factor for time-of-flight neutron Bragg and total scattering Yuanpeng Zhang, Jue Liu and Matthew G. Tucker


Figure S1 The refinement against the $S(Q)$ pattern for an Si standard sample measured on both the NOMAD and POWGEN diffractometers at the SNS, ORNL. In this case, no $Q$-dependent scale factor is applied.


Figure S2 The refinement against the $S(Q)$ pattern for an Si standard sample measured on both the NOMAD and POWGEN diffractometers at the SNS, ORNL. In this case, a multiplicative factor $1 / Q^{4}$ is applied.


Figure S3 The refinement against the TOF Bragg pattern for an Si standard sample measured on both the NOMAD and POWGEN diffractometers at the SNS, ORNL. In this case, a multiplicative factor $d^{4}$ is applied.


Figure S4 The refinement against the TOF Bragg pattern for an Si standard sample measured on both the NOMAD and POWGEN diffractometers at the SNS, ORNL. In this case, a multiplicative factor $d^{2}$ is applied.


Figure S5 The refinement against the TOF Bragg pattern for an Si standard sample measured on both the NOMAD and POWGEN diffractometers at the SNS, ORNL. In this case, no $d$-dependent scale factor is applied.


Figure $\mathbf{S 6}$ (a) The description of the symmetry component of the peak shape of NOMAD SQ data. The detailed description of the back-to-back exponential and the Gaussian/Lorentzian components can be found in the TOPAS macro. (b) Comparison of the pseudo-Voigt fitted resolution function (from individual Si reflections) and the simulated Gaussian/Lorentzian components.

