

Round Robin in X-ray scattering data analysis

Brian R. Pauw et al.
6.5 Synthesis and
Scattering of
Nanostructured
Materials

Dear participant,

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After our earlier Round Robin, where we looked at the variation in datasets obtained from various instruments, we are now looking at the next step: analysis. Here, the plan is to have many participants like yourself, to try analyzing the four datasets that we have selected for this study. The variation in the results obtained may help quantify the influence that an individual can have on the accuracy of small-angle scattering results.

Information that would normally be available to you as an experimenter (such as material and dispersant) are as follows:

- Dataset 1: Gold spherical particles in water, 8 keV X-ray photons
- Dataset 2: Spherical silica particles in water, 8 keV X-ray photons
- Dataset 3: Silica powder (spherical packed silica particles in air), 8 keV photon energy
- Dataset 4: Small globular diamond particles in air (as powder), 8 keV photon energy

The datasets are corrected and scaled to absolute units (with I in units of $1/(\text{m sr})$, and q in units of $1/\text{nm}$), and so may provide useful volume fractions too. Each dataset has some unique features that might provide interesting challenges. If a dataset is too complicated to fit, it can be omitted.

The resultant data that you and the other participants provide will be anonymised for the statistical analysis of the Round Robin. If we can arrive at publishable conclusions, we would like to include you in the author list as you have provided scientific insight to this work. A pre-publication manuscript will then be circulated and posted on the ArXiv before it is submitted to a suitable journal. Therefore, please make sure to fill in your contact and institute details in the Excel sheet.

We hope you can provide us with a filled-in Excel answer sheet, which we will read by machine (so please adhere to the recommended output data type as much as possible to allow for this). In addition, you can send us any output or fit files that were output by your software just in case we need to troubleshoot. All files can be sent to scattering@bam.de with the subject line "Round Robin Results". We thank each participant cordially for their contribution! Good luck!

Yours sincerely

Brian R. Pauw and colleagues

Enclosure(s)

- Excel sheet for entering fitting results
- Four datasets with I in units of $1/(\text{m sr})$, q in units of $1/\text{nm}$, in three-column ascii with columns q , I and uncertainty on I (one standard deviation)