# Looking At Nothing: life with a weblog

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## Why "blog"?

Unusual as it may be, maintaining a weblog fits very well in science: it streamlines the communication of findings and encourages open discussion. It also trains the scientist to divide research into small investigations, each of which be separately evaluated and can (b)logged. On this poster are four examples of posts that have been written throughout 2014, demonstrating the integration of the medium in the field. In addition, a YouTube channel is available which hosts videos associated with the weblog.

#### (2014/8/11)**Comparisons of Doom: line vs. pinhole**

The typical argument in favor of the line-collimated "Kratky"-type instruments is that its X-ray flux is very high and that therefore you need only short measurement times. However, its data needs to be corrected through a "desmearing"-procedure, amplifying uncertainties and noise in the process. Does this approach then really give you better



### (2014/11/18)Looking at Nothing, Seeing a Lot

Today is a day of relief for Dr. Julian Stirling and his eight co-authors (with many looking forward to the response, including Raphaël Lévy). The paper released today opposes ten years of prolific work from a group claiming to have made and observed stripes on the surface of nanoparticles (c.f. Figure 0, Figure 1 in this post). While most of the work revolves around scanning probe microscopy (SPM), small-angle scattering also played a minor role (c.f. Figure 2 and this paper). This, coupled with modern approaches to publication, led to my inclusion in the (otherwise amazing) list of authors. Here is how this came to be...



For the full story see [2, 3] or use QR code





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// [...] Nevertheless, the data shows systematic deviations from the calibrated data, with differences in the low-Q region of the integrated dataset of about 5%, and 10% at high-Q. The results from fitting a dataset measured on this instrument, therefore, will be just as rubbish as the data that went into the fit. We need to do the flatfield correction to get data to a more reasonable accuracy.

observed, the possibility of anisotropic shapes such as a rod, disc, and ellipsoid of revolution is denied. "

That is an elegant way of putting it (note that it is an unidirectional exclusion and does not work the other way), and it sounds about right. So let's test this with some simulations. These, of course, cannot prove that the statement is true, but can only disprove the statement.





SAS Demo: Hairs in laserlight



#### + a little outreach,

in return for a little feedback

- + a platform to log and explore ideas
- + adherence to open ideals: excludes none
- + a fun way to exercise writing
- + can be integrated as standard reporting
- + a good way to get in touch with colleagues

## Benefits

## Example Feedback

Since we are studying such small species in solution, our background subtraction is really critical, and of course the slightest change in background scaling and subtraction will change our data significantly. So what is the best way to subtract out background? [...]

// I was always interested how to learn more over Monte Carlo simulations and form factor fitting. Usually the papers say we used Monte Carlo methods and then it stops. Do you have any advice how to start in this area? [...]

## Conclusions?

LookingAtNothing started in 2006, when academic blogs were just starting out. By now, their academic relevance has been demonstrated even for such obscure

- can be very time consuming - lack of feedback can reinforce self-doubt - not generally thought of as a valid waste of time... - ...or "true" science - building an audience takes many years

Drawbacks

### References

[1] http://www.lookingatnothing.com/index.php/archives/1309 [2] http://www.lookingatnothing.com/index.php/archives/1415 [3] J. Stirling, I. Lekkas, et al., PLoS ONE 9: e108482 [4] http://www.lookingatnothing.com/index.php/archives/1060 [5] http://www.lookingatnothing.com/index.php/archives/1397

11 Your test data had background imposed that was clearly anisotropic - if one has that knowledge then I think that it is clear that the initial two-dimensional corrections will give rise to better estimates for corrected data as regards uncertainty. [...] 11

I was reading your weblog, and I wanted to tell you that I was very excited that someone is picking up the problem that one of my first PhD students, Bryan McAlister, worked on for his PhD (in the late 1990s) [...]

// Could you tell me if there is one, or a few, usual SAXS data format, for 1D and 2D data, e.g. based on HDF5, that you would recommend to include as input for a scattering data software? [...]

11 I've started a project that requires SAXS measurements. I'm new in this field and I'm hight motivated, I wonder if you know about tutorials that could help me [...]

#### topics as SA(X)S.

However, a weblog is driven by its content, which can be hard to come by on a regular basis as a single researcher. A better approach is to run a weblog as a concerted effort by a group on a roster. As the field expands, this may also be the way forward for LookingAtNothing: a central site for contributed articles. Time will tell if such efforts can be launched, or whether this will remain the effort of one.

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