

# refnx - The Next Generation of Reflectometry Analysis Software

Thursday, 12 November 2020 17:46 (1)

refnx [1] is a next generation reflectometry analysis package, building on its predecessor, Motofit. In this presentation we discuss its main design features:

- Bayesian statistics core with comprehensive uncertainty analyses and model selection ("how many layers can the data justify") [2].
- modular construction of structural models, ranging from a basic Slab up to freeform SLD profiles and Lipid membrane leaflets. These components are easily extensible.
- Co-refinement of multiple contrast datasets.
- Mixed Area models.
- Python based with analyses performed in Jupyter notebooks or a Qt GUI.

refnx is specifically designed to facilitate reproducible research. Here we also discuss what reproducible research means in the context of a neutron scattering study, outlining how this is achieved with refnx, and how these practices could (should) be taken up by neutron scatterers in general.

[1] Nelson, A. R. J. & Prescott, S. W.

refnx: neutron and X-ray reflectometry analysis in Python

Journal of Applied Crystallography, 2019, 52, 193-200

[2] If you don't know what Bayesian statistics is and have always wondered, you'll now find out.

## Speakers Gender

## Level of Expertise

Expert

## Do you wish to take part in the poster slam

No

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**Session Classification** : Poster Session

**Track Classification** : Neutron Instruments & Techniques