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Simulation of grazing-incidence small-angle scattering for soft matter studies

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Grazing-incidence small-angle scattering (GISAS) is a powerful non-destructive technique to investigate nano- and layered structures deposited to the substrate. Nowadays, GISAS is increasingly used to study various soft matter systems.

The disadvantage of GISAS is the challenging data analysis that requires a simulation of the scattering process on a model of the sample. Simulation allows for an understanding of the significance of the various sample properties and accounts for better data analysis and planning of further GISAS experiments.

In this contribution we give a short update on the evolution of our software BornAgain [1] and present its application in the recently published studies for analysis of GISAS data for soft matter systems [2-4].

[1] J. Burle, C. Durniak, J. M. Fisher, M. Ganeva, G. Pospelov, W. Van Herck, J. Wuttke, D. Yurov, "BornAgain - Software for simulating and fitting X-ray and neutron small-angle scattering at grazing incidence", Version 1.11.1 (2013-2018), <http://www.bornagainproject.org> (2018)

[2] T. Kyrey, et. al, "Grazing incidence SANS and reflectometry combined with simulation of adsorbed micro-gel particles" *Physica B* (2018), In Press

[3] H.Frielinghaus, et. al., *Nucl. Instr. and Meth. A* 871, 72-76 (2017)

[4] T. Nylander, et. al., *J. Phys. Chem. B* 121, 2705-2711 (2017)

Primary authors: Dr FISHER, Jonathan (JCNS at MLZ, Forschungszentrum Jülich GmbH); Dr GANEVA, Marina (JCNS at MLZ, Forschungszentrum Jülich GmbH); Dr POSPELOV, Gennady (JCNS at MLZ, Forschungszentrum Jülich GmbH); Dr VAN HERCK, Walter (JCNS at MLZ, Forschungszentrum Jülich GmbH); Dr WUTTKE, Joachim (JCNS at MLZ, Forschungszentrum Jülich GmbH); Dr YUROV, Dmitry (JCNS at MLZ, Forschungszentrum Jülich GmbH)

Presenter: Dr GANEVA, Marina (JCNS at MLZ, Forschungszentrum Jülich GmbH)

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