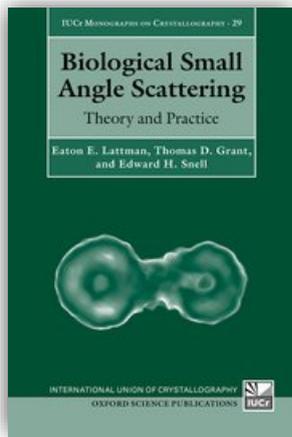


Biological Small Angle Scattering: Theory and Practice^{*}, Eaton E. Lattman, Thomas D. Grant and Edward H Snell, Oxford University Press, Oxford, 2018, 288 pages, ISBN: 978-019967087-1.



Although I've reviewed at least one other book on small angle scattering (SAS), this volume really addresses the current theory and practice with sufficient detail for a skilled scientist to successfully begin a study in biological small angle scattering. The book is divided into five parts.

Part 1, the introduction, conveys the basic reasons you might perform a SAS experiment and the results you might obtain: particle molecular mass, radius of gyration, pair distance distribution, compactness and molecular envelope.

Part 2 has three chapters. The first two provide a mathematical description of scattering theory and derive the equations for many of the results listed in the Part 1. The last chapter of Part 2 covers a topic of modeling from SAS data.

The first half of Part 3 delves into the issues of how to prepare samples for data collection, data collection, initial interpretation of results at the time of collection, and interpreting final results. The second half of Part 3 considers various aspects of instrumentation both at home and at the beamline, special experimental setups, and neutron scattering.

Part 4 looks at some interesting examples of the application of SAS to biological problems. Here, the authors provide initial findings from XFELs and describe an interesting concept that many will recognize as an application of the Shake-and-Bake algorithm to the SAS problem. The authors conclude with a short epilogue listing a number of references for operating various software packages.

Part 5 contains an appendix, a list of acronyms, a glossary, a list defining major variables, references, and an index.

* I should disclose I have known two of the authors for many years, there is a picture of a Rigaku system on page 139 and I have no financial interest.

*Review by Joseph Ferrara
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