



The Physics of Soft and Biological Matter

P.25 Simple continuum descriptions of macromolecule complexes for imaging techniques

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We have developed simple continuum techniques for describing thin electron densities in order to represent macromolecular complexes. This description is appropriate for imaging techniques such as Small-angle scattering and fiber diffraction. The mathematical framework is significantly flexible. It allows for arbitrary shape, yields simple expressions for including repeat structures on the tertiary and quaternary scale and can allow for arbitrary levels of complexity of the density, including the facility to include solution-molecule interactions. It is particularly simple to describe structures composed of helical units in this framework. In addition we have general expressions for the Fourier transform of these densities, which can be used to convert a predicted structure into a diffraction pattern. We introduce this framework and briefly mention recent and ongoing work applying these techniques to small angle scattering data.