How light scattering can contribute to purification, characterization and crystallization of proteins

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The advent of proteins used in many fields like diagnostics or as therapeutic agents brought the necessity to monitor all steps of synthesis and processing as well as highly efficient and reliable quality control procedures before administration, e.g. in human disease. Moreover, isolation or synthesis of numerous structural and membrane proteins in life sciences require powerful techniques to determine various parameters such as molecular weight, radius, oligomeric state or aggregate formation to assess the quality of a preparation. For many samples, their crystallization behavior also has to be evaluated and predicted, if possible. The choice of an appropriate separation method such as Size Exclusion Chromatography (SEC) or Field Flow Fractionation (FFF) can also play an important role in the process. In our presentation we will address the basics of light scattering technology and show application examples to give an insight into the usefulness of the Wyatt light scattering toolkit for macromolecular characterization.