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Title:	Nanophotonics of protein amyloids
Authors:	Bhattacharya, M. (/jspui/browse?type=author&value=Bhattacharya%2C+M.) Mukhopadhyay, S. (/jspui/browse?type=author&value=Mukhopadhyay%2C+S.)
Keywords:	Amyloids Near-field imaging Protein misfolding
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Publisher:	Walter de Gruyter GmbH
Citation:	Nanophotonics,3(1-2), pp.51-59.
Abstract:	Technological breakthroughs in the superresolution optical imaging techniques have enriched our current understanding of a range of biological systems and biomolecular processes at the nanoscopic spatial resolution. Protein amyloids are an important class of ordered protein assemblies consisting of misfolded proteins that are implicated in a wide range of devastating human diseases. In order to decipher the structural basis of the supramolecular protein assembly in amyloids and their detrimental interactions with the cell membranes, it is important to employ high-resolution optical imaging techniques. Additionally, amyloids could serve as novel biological nanomaterials for a variety of potential applications. In this review, we summarize a few examples of the utility of near-field scanning optical imaging methodologies to obtain a wealth of structural information into the nanoscale amyloid assembly. Although the near-field technologies were developed several decades ago, it is only recently that these methodologies are being applied and adapted for amyloid research to yield novel information pertaining to the exciting nanoscopic world of protein aggregates. We believe that the account on the nanophotonics of amyloids described in this review will be useful for the future studies on the biophysics of amyloids.
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