

Abstract for an Invited Paper
for the SES10 Meeting of
The American Physical Society

Amyloid Nucleation and Assembly Dynamics¹

KEITH BERLAND, Emory University

The nucleation and growth mechanisms in amyloid forming materials are of high interest due to their importance in human diseases and also due to their potential applications as functional nano-materials. While much is known about the secondary structure of amyloids materials, the nucleation mechanism and self-assembly processes remain poorly understood. We have recently identified unstructured intermediates play a critical role in early nucleation and assembly of amyloid nanotubes in model peptide systems, and resolved that initial assembly proceeds via monomer addition to the ends of elongating tubes. We will discuss our current understanding of these assembly pathways, and discuss recent measurements highlighting dynamic structural evolution as nanostructures mature following initial assembly.

¹This work was supported by NSF awards 0817966 and 0907435 and Emory University.