

Abstract Submitted
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Surface Effects on Amyloid Fibril Formation¹ BRAD MOORES,
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Physics and Astronomy, Department of Biology, University of Waterloo — Amyloid
fibrils are insoluble aggregates composed of proteins in beta-sheet conformation,
which are implicated in at least 20 diseases for which no cure is currently available.
Although fibril plaque formation is associated with biological membranes in vivo,
most of earlier research on fibrillogenesis has been performed in a solution phase,
in which only a protein-protein interactions are considered. On the other hand,
the surface of plasma membrane could provide the environment in which amyloid
forming proteins could cluster. In order to get an insight into the understanding of
the effect of the surface of plasma membrane, and the surfaces in general, on amyloid
fibril formation, we used Atomic force microscopy to study binding of amyloid beta
1-42 peptide and amyloid fibril formation on model surfaces, such as chemically
modified positively charged, negatively charged and hydrophobic substrates. The
results show that structure, size and amount of larger fibrils and smaller aggregates
depend on the type of surface, and differ from aggregation observed in solution.

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