1138-92-270   **Shantia Yarahmadian*** (`syarahmadian@math.msstate.edu`), 410 Allen Hall, Mississippi State University, Mississippi State, MS 39762. *A Mathematical Model for Amyloid- β Aggregation in the Presence of Metal Ions.* Preliminary report.

The aggregation of amyloid-β (Aβ) proteins through their self-assembly into oligomers, fibrils, or senile plaques is advocated as a key process of Alzheimer's disease. Recent studies have revealed that metal ions play an essential role in modulating the aggregation rate of amyloid-β (Aβ) into senile plaques because of high binding affinity between Aβ proteins and metal ions. Here, we proposed a mathematical model as a system of coupled kinetic equations that simulates the self-assembly of amyloid-β (Aβ) proteins in the presence of metal ions. The numerical simulations capture four timescales in the Aβ dynamics associated with three important events which include the formation of the amyloid-metal complex, the homogeneous aggregation of the amyloid-metal complexes, and the non-homogeneous aggregation of the amyloid-metal complexes. (Received February 12, 2018)