

1158-35-346

Fabian Santiago* (fsantiago3@ucmerced.edu), Applied Mathematics, 5200 North Lake Road, Merced, CA 95343, and **Suzanne Sindi** (ssindi@ucmerced.edu), Applied Mathematics, 5200 North Lake Road, Merced, CA 95343. *A Likelihood Approach for Estimating Kinetic Rates of Prion Replication from a Structured Population Model*. Preliminary report.

Prion proteins cause a variety of fatal neurodegenerative diseases in mammals but are harmless to yeast, making it an ideal model organism for these diseases. Determining kinetic parameters of prion replication in yeast are complicated because experiments reflect both the disease and yeast population dynamics. We present a structured population model describing the distribution and replication of yeast prions in a population of cells. We then develop a likelihood based approach for estimating kinetic rates on simulated data and six different yeast prion strains. (Received March 03, 2020)