Abstract Submitted
for the PSF11 Meeting of
The American Physical Society

Individual-based Modeling of a *Pseudomonas aeruginosa* Biofilm with Glucose Substrate[1] MATTHEW J. STEFFENS, Dept. of Physics, Doane College, Crete, NE, BARBARA J. CLEMENT, Dept. of Biology, Doane College, Crete, NE, CHRISTOPHER D. WENTWORTH, Dept. of Physics, Doane College, Crete, NE — Individual-based modeling is a technique for simulating the spatially explicit dynamics of a community of individuals that can each be in a different state. In this investigation we use IBM to simulate growth of a simple biofilm system: *Pseudomonas aeruginosa* with a glucose substrate. The recently published IBM framework for microbial communities, iDynoMiCS, is used together with growth parameters from a recent kinetics study of this system to explore patterns of films over a 24 hour growth period for a two-dimensional and a 12 hour growth period for a three-dimensional model.

[1]Support provided by the Doane College Undergraduate Research Program.

Christopher D. Wentworth
Dept. of Physics, Doane College, Crete, NE

Date submitted: 29 Sep 2011 Electronic form version 1.4