1046-92-509 **David L Chopp*** (chopp@northwestern.edu), ESAM, Tech Institute, Northwestern University, 2145 Sheridan Rd., Evanston, IL 60208. *A Multi-Species Model for Bacterial Biofilms used in Waste Water Treatment.*

Bacterial biofilms are one of the most ubiquitous forms of life on the planet. Biofilms are aggregations of bacteria or other microorganisms that form on solid surfaces. Biofilms have a significant impact on human life, both negatively and positively. Biofilms are responsible for contributing to human disease, e.g. Legionnaires Disease, fouling pipes in food processing, and corroding ship hulls to name a few. On the other hand, biofilms can also be used to improve agricultural production, help make household cleaning products, and even produce electricity. In this talk we will focus on bacterial biofilms used in the reclamation of waste water where it is used to remove nitrates and nitrites from the fluid to produce nitrogen gas. We will discuss the issues related to improving performance of these biofilms in commercial reactors and how mathematical modeling is used to analyze the biofilms and their response to the environment in ways that cannot be done experimentally. (Received September 05, 2008)