962-35-307 **Hal L Smith*** (halsmith@asu.edu), Tempe, AZ 85287. *Microbial growth and competition for wall sites in tubular flow reactors.*

Mathematical models of microbial growth and competition for limiting substrate and for colonization sites on the surface of a tubular flow reactor will be described. They take the form of advection-diffusion equations coupled to ordinary differential equations. The mathematical focus is on the asymptotic behavior of solutions, in particular, on the persistence of the microbial populations, and the stability of steady states. Such models have been used to study the phenomena of colonization resistance in the gut and on biofilm formation in tubular flow. (Received September 08, 2000)