1067-45-1953 **Dashun Xu*** (dxu@math.siu.edu), 1245 Lincoln Drive, Carbondale, IL 62901, and **Gregory J Sandland**, **Dennis J Minchella** and **Zhilan Feng**. *Interactions among virulence, coinfection and drug resistance in a complex life-cycle parasite.*

Motivated by recent empirical studies on Schistosoma mansoni, we use a mathematical model, which consists of ordinary differential and integral equations, to investigate the impact of drug treatment of human hosts and co-infection of intermediate snail hosts by multiple strains of parasites on the evolution of parasites. By examining the evolutionarily stable strategies(ESS) of parasites, our study suggests that higher levels of drug treatments (which usually tend to promote monomorphism as the evolutionary endpoint) will favor parasite strains that have a higher level of drug resistance and a lower level of virulence. Our study also shows that while co-infection of the intermediate host does not affect the levels of drug resistance or virulence of parasites at ESS points, it tends to destabilize ESS points and hence promote dimorphism or even polymorphism as the evolutionary endpoint. (Received September 22, 2010)