1056-92-1396 **Yiding Yang*** (yang@math.purdue.edu), Department of Mathematics, Purdue University, 150 N. University Street, West Lafayette,, IN 47907, and **Zhilan Feng**, **Dashun Xu** and **Dennis Minchella**. *Effect of host heterogeneity on the coevolution of parasite and host.*

A system of differential equations which models the disease dynamics of schistosomiasis is used to study the evolution of parasite virulence. The model incorporates both the definitive human hosts and two strains of intermediate snail hosts. An age-structure of human hosts is considered to reflect the age-dependent transmission rate and age-targeted drug treatment rate. The basic parasite reproductive number $\Re_i$ of strain i snail hosts is computed, and the invasion reproductive number $\Re_{ij}$ for strain i snail host when type j snail hosts are at the equilibrium. We establish the criterion for strain i to invade strain j snail host, and the criterion is used to examine the evolutionary dynamics of snail hosts and the parasite. (Received September 21, 2009)