1138-92-380 **Junyuan Yang*** (yangjunyuan00@126.com). *AN AGE-STRUCTURED-LIKE MODEL FOR NON-MARKOVIAN SEXUALLY TRANSMITTED DISEASES IN THE COUPLED NETWORK.*

In most models of sexually transmitted diseases (STDs) spreading in networks, it is assumed that the transmission and recovery processes are Markovian; that is, the transmission and recovery times per event are exponentially distributed, which is generally not true in a realistic situation. In the paper, we propose a general Edge-Based Age-structured-like Compartmental Model for STDs (EBACMS) allowing for general transmission and recovery times distributions in a coupled conguration network. We consider transmissions between homosexual men (MSM) with heterosexual contacts. We study the basic reproduction number R_0, the global stability of disease-free equilibrium when R_0 ¡ 1, and the final epidemic size F when $R_0 > 1$ of the model. Numerical simulations indicate that given a fixed exponential transmission time distribution, a higher variance in general recovery time distribution gives smaller R_0 and F. Sensitivity analysis on R_0 and F in terms of the parameters illustrates that the MSM route has a greater impact on R_0 and F than the heterosexual transmission route when the transmission process is Markovian and the recovery process is arbitrary. Our results provide excellent guidance to develop appropriate prevention and control strategies. (Received February 13, 2018)