1133-92-198 **Michael Li**, **Weishi Liu** and **Chunhua Shan*** (chunhua.shan@utoledo.edu), Toledo, OH 43606, and **Yingfei Yi**. *Turning points and relaxation oscillations in an epidemic model.*

We study the interplay between effects of disease burden on the host population and the effects of population growth on the disease incidence in an SIR type epidemic model. Under the assumption that the host population has a small intrinsic growth rate, using singular perturbation techniques and the phenomenon of the delay of stability loss due to turning points, we prove the existence of large-amplitude relaxation oscillation cycles, which contrast sharply to oscillations via Hopf bifurcation. Simulations are provided to support the theoretical results. Our results offer new insight into the classical periodicity problem in epidemiology. (Received July 25, 2017)