

1163-92-362

Yunshyong Chow (chow@math.sinica.edu.tw), Taipei, Taiwan, and **Sophia Jang*** (sophia.jang@ttu.edu), 01672176502170, Lubbock, TX 79424. *Neimark-Sacker bifurcations in a host-parasitoid system with a host refuge.*

In this talk we introduce a discrete model of host-parasitoid interactions with a constant proportion of host refuge. The model is built upon the classical Nicholson-Bailey system by assuming in each generation a constant proportion of the host is free from parasitism. We derive a sufficient condition based on the model parameters for both populations to coexist. We show that it is possible for the system to undergo a supercritical and then a subcritical Neimark-Sacker bifurcation or for the system only to exhibit a supercritical Neimark-Sacker bifurcation. It is illustrated numerically that a constant proportion of host refuge can stabilize the host-parasitoid interaction. (Received September 03, 2020)