1125-VM-2369 **Brooks K Emerick*** (brooks.emerick@trincoll.edu), 300 Summit Street, Hartford, CT 06106. *The effects of parasitoid migration on stability of discrete-time host-parasitoid population dynamic models.* Preliminary report.

Extensive work has been done on analyzing host-parasitoid interactions using discrete-time models, the most notable of which is the Nicholson-Bailey model. Our research focuses on a semi-discrete framework in which the host-parasitoid interactions are characterized by a continuous-time model. The continuous dynamic allows us to incorporate intricate behaviors of the host-parasitoid interaction such as host-feeing, egg load capacity, or migration. This paper incorporates migration of parasitoids between two locations. We find that in the simplest case, when the migration rates are constant, the model is unstable yielding diverging oscillations similar to the Nicholson-Bailey model. However, when we consider one-way migration, i.e. a no-return scenario, coexistence between hosts and parasitoids occurs. A similar stability region arises when we consider an instant transportation of parasitoids between the two locations. In this work, we present analytic and numerical results that describe the region in parameter space in which coexistence among the two species is possible. This parameter space is characterized by two factors: the number of viable larvae per adult host and the fraction of host larvae present at the initial location each year. (Received September 20, 2016)