

---

**XUEFENG SAN**, Lanzhou University and Memorial University

*Traveling waves for a periodic epidemic model in a patchy environment*

In this paper, we study an epidemic model in a periodic patchy environment with bilinear incidence, where all the parameters share the same period  $N$ . When the basic reproduction number  $R_0$  is greater than one, we prove the existence of the minimum wave speed  $c^*$  for nontrivial traveling wave solutions. We also show that there is no nontrivial traveling wave solution when  $R_0$  is less than or equal to one and the wave speed  $c$  is greater than zero, or  $R_0$  is greater than one and  $c$  is in the interval  $(0, c^*)$ . We find that the heterogeneity of the environment has important impact on the spatial spread of infectious diseases. More specifically, both the heterogeneity of the transmission rates and the removed rates can increase  $c^*$  and  $R_0$ .