

Persistence of Chronically Infecting Bacteriophage in a Host System

Paul Salceanu¹, Hayriye Gulbudak²

^{1,2} *University of Louisiana at Lafayette, 104 East University Avenue, Lafayette, LA, US, 70504*
salceanu@louisiana.edu,
hayriye.gulbudak@louisiana.edu

We propose a delay differential equations model describing the dynamics of interactions between chronic viruses and one type microbial host. We show that when the disease-free equilibrium can be invaded the infection persists in the host population. Numerical simulations and bifurcation diagrams are also used for the study of stability of the interior equilibria.

References

- [1] H. Gulbudak, J.S. Weitz, *Heterogeneous virus strategies promote coexistence in virus-microbe systems*. *Journal of Theoretical Biology*, **462** (2019), pp.65–84.
- [2] K. Hale, S.M.V. Lunel, *Introduction to Functional Differential Equations*. Springer-Verlag, New York, 1993.

*Mini-Symposium: Disease Modelling - from Within Host to Population