

Pr. Arnaud Ducrot

Title: Mathematical modelling and analysis of the adaptive dynamics in mosquito populations: Uniform persistence of malaria infection

Abstract: In this talk, we present a mathematical model for the spread of malaria, incorporating key factors such as human populations, mosquito behavior, and the mosquitoes' plasticity and adaptation to control measures like widespread insecticide-treated mosquito nets and indoor residual spraying. Through analysis of the model, we identify and describe the convergence and persistence properties of the solutions, using a small parameter that represents the interactions between mosquitoes in relation to their activity patterns. In our analysis, we extend some ideas from the theory of uniform persistence to the case of semiflow without dissipativity.