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*Statistical Modeling and Testing Concerning the Homogeneity of Some Predator-Prey Populations*

In this talk, we consider a testing problem concerning the homogeneity between  $k$  pairs of the interaction parameters of  $k$  deterministic Lotka–Volterra systems of ordinary differential equations (ODEs), that describe the ecological interaction between  $k$  predator-prey populations. To this end, we consider a measurement-type model for which the trajectories of the ODEs are perturbed with  $k$  pairs of correlated Ornstein–Uhlenbeck processes. Accordingly, we extend the stochastic model suggested in Froda and Nkuru-nziza (2007) where  $k = 1$ . Thanks to certain reparametrization properties of the Lotka–Volterra ODEs, we establish a likelihood ratio test. Further, we study the asymptotic properties of this test and highlight its performance through some simulations studies.