

## **Stochastic Population Model with Predation Fear**

**Çağatay Eskin – Özgür Gültekin**

In predator-prey models, one of the basic factors that affect dynamics of a population is predation of a prey directly by a predator. However, in recent years there are some opinions coming to the fore that the predation fear on the species may be more effective than the predation mechanism. Allee effect in a population can be defined as a positive correlation between population density and mean individual fitness. As the population density of a prey population decreases, predation fear on individuals increases. Therefore, predation fear may play a role in enhancing the Allee effect in the population. In this study, we present a stochastic population model subject to predation fear and white noise. Thus, we discuss the evolution of the population by obtaining the stationary probability distribution of the population through the solution of the Fokker-Planck equation.