

1116-60-2951      **dawit befekadu denu\*** (dbd0005@auburn.edu), 351 east gleen avenue, apartment 11, auburn, AL 36830. *Stochastic Vector-Host Epidemic Model with direct transmission.*

In this talk I will discuss on the effect of introducing stochasticity into the deterministic vector-host epidemic model with direct transmission. First, I will discuss on the existence of a positive global solution and its stochastic boundedness. Then I will introduce a basic reproductive number  $R_s$  for the stochastic model and then investigate the dynamics of the stochastic epidemic model when  $R_s < 1$  and  $R_s > 1$ . In particular, I will show that random effects may lead to extinction in the stochastic case while the deterministic model predicts persistence. Additionally, we provide conditions for the existence and uniqueness of the stationary distribution. Finally, numerical simulations are presented to illustrate some of the theoretical results. (Received September 23, 2015)