

Abstract: The aim of this work is to look into the theory of linear systems via population model represented by partial differential equations with boundary and initial condition. Special attention is devoted to the strongly continuous semigroups on a complex Banach space. For this purpose, the notion of a homogeneous and inhomogeneous Cauchy problem is introduced and we solve our model in this abstract formulation. The system behaviour is based on properties of the resolvent set and spectrum. Controllability question limits to solve the uniformly exponentially stability and the exponentially stabilizability. The point of this problem is in the case of the unstability to show exponentially stability of the system by using feedback.

Keywords: control, differential equations, stability, controllability