

Infinite Dimensional Riccati Equations: Computational Issues and Applications

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Abstract

In this lecture we focus on infinite dimensional Riccati equations, their applications and computational issues that arise in the development of numerical methods. The issue of approximation is important in the practical design and implementation of controllers for distributed parameter systems. There are two key questions that need to be addressed. The first question is to decide when to introduce approximations and the second concerns the selection the type of approximation that is best suited for the particular Riccati equation. We motivate the talk by describing some applications that require numerical solutions of infinite dimensional Riccati equations and provide examples to illustrate the computational challenges.