论文

THE POLE ASSIGNMENT OF LINEAR SYSTEMS

Shi He

Institute of Systems Science,Academia Sinica,Beijing 100080,China

收稿日期　修回日期　网络版发布日期　接受日期

摘要　　In this paper the pole assignment problem of a time invariant linear control system issolved by using the Wu Elimination Method. In general, the questions are classified into (i)the poleassignment by using state feedback, (ii)the pole assignment by using output feedback, (iii)the pole assignment via dynamic compensator. The key point of all these problems is to solve a certaincorresponding system of polynomial equations. Based on algebraic geometry, the Wu method provides a mechanical algorithm for solving the system of polynomial equations. Therefore, a unified definite algorithm for solving all these problems is given in this paper. During the procedure of elimination, the unknowns are automatically separated into parameters and apparent variables. Thus, the freedom of the corresponding feedback can be defined as the number of parameters. Meanwhile, the explicit expressions of the apparent variables depending on the parameters are obtained.

关键词　　Wu Elimination,linear system,pole assign

分类号

DOI:

通讯作者