W. Murray Wonham

LINEAR MULTIVARIABLE CONTROL. A GEOMETRIC APPROACH

Lecture Notes in Economics and Mathematical Systems

Systems Theory No. 101, Springer-Verlag, Berlin, Heidelberg, New-York.

The theory of linear time invariant control systems developed tremendously during the last 10—15 years.

New concepts and techniques have been introduced, practical methods of synthesis have been applied. In this very interesting monograph the author summarises his and his collegues and students contributions to point out the geometric content of the results from which computational procedures by using matrices follow in a natural way. In such short presentation we feel the best will be to give the titles of the chapters: Mathematical preliminaries, Introduction to controllability, Controllability, feedback, and pole assignment observability and dynamic observers, disturbance decoupling and output stabilization, controllability subspaced, output stabilization, internal stabilization, structurally stable synthesis, Basic principles of noninteracting control, efficient compensation in noninteracting control, generic solvability of interacting control problems, quadratic optimization. Each chapter contains exercises (very useful for people interested in effective applications) and references. The book is a very important contribution to the understanding of the linear system theory, most useful for mathematicians working in this area as well as for theoretically minded engineers.

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