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| Autore                  | Montenbruck Jan Maximilian                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Titolo                  | Constructive approaches to submanifold stabilization / / vorgelegt von Jan Maximilian Montenbruck aus Oberhausen                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| ISBN                    | 3-8325-9474-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Descrizione fisica      | 1 online resource (xiii, 98 pages) : illustrations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Disciplina              | 516.362                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Soggetti                | Submanifolds                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Lingua di pubblicazione | Inglese                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Nota di bibliografia    | Includes bibliographical references (page 89-95).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Sommario/riassunto      | Long description: Submanifold stabilization is the problem of steering a quantity towards a desired submanifold of the space in which it evolves. This is done by controlling the system producing the quantity in an appropriate fashion. In this thesis, methods for explicitly constructing controllers which solve submanifold stabilization problems are proposed. To this end, three distinct approaches are pursued: For control systems modeled by input-affine differential equations, a construction for turning the submanifold into an asymptotically stable invariant set is presented. For controllers which shall stabilize the submanifold with minimal energy consumption, the structure of such optimal controls is investigated. For control systems modeled by input-output relationships, a framework for bounding the integral deviation of the output from the submanifold is proposed. |