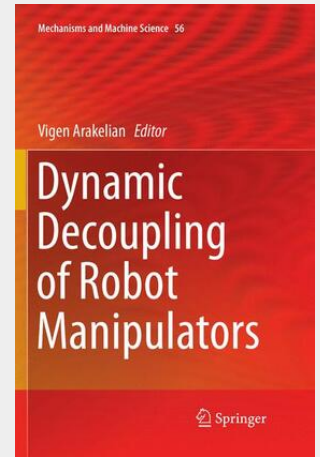


## Dynamic Decoupling of Robot Manipulators

This book presents the latest results in the field of dynamic decoupling of robot manipulators obtained in France, Russia, China and Austria. Manipulator dynamics can be highly coupled and nonlinear. The complicated dynamics result from varying inertia, interactions between the different joints, and nonlinear forces such as Coriolis and centrifugal forces. The dynamic decoupling of robot manipulators allows one to obtain a linear system, i.e. single-input and single output system with constant parameters. This simplifies the optimal control and accumulation of energy in manipulators. There are two ways to create the dynamically decoupled manipulators: via optimal mechanical design or control. This work emphasises mechatronic solutions. These will certainly improve the known design concepts permitting the dynamic decoupling of serial manipulators with a relatively small increase in total mass of the moving links taking into account the changing payload. For the first time such an approach has been applied on serial manipulators. Also of great interest is the dynamic decoupling control of parallel manipulators. Firstly, the dynamic model of redundant multi-axial vibration table with load has been established, and, secondly, its dynamic coupling characteristics have been analyzed. The discussed methods and applications of dynamic decoupling of robot manipulators are illustrated via CAD simulations and experimental tests.

This book presents the latest results in the field of dynamic decoupling of robot manipulators obtained in France, Russia, China and Austria. Manipulator dynamics can be highly coupled and nonlinear. The complicated dynamics result from varying inertia, interactions between the different joints, and nonlinear forces such as Coriolis and centrifugal forces. The dynamic decoupling of robot manipulators allows one to obtain a linear system, i.e. single-input and single output system with constant parameters. This simplifies the optimal control and accumulation of energy in manipulators. There are two ways to create the dynamically decoupled manipulators: via optimal mechanical design or control. This work emphasises mechatronic solutions. These will certainly improve the known design concepts permitting the dynamic decoupling of serial manipulators with a relatively small increase in total mass of the moving links taking into account the changing payload. For the first time such an approach has been applied on serial manipulators. Also of great interest is the dynamic decoupling control of parallel manipulators. Firstly, the dynamic model of redundant multi-axial vibration table with load has been established, and, secondly, its dynamic coupling characteristics have been analyzed. The discussed methods and applications of dynamic decoupling of robot manipulators are illustrated via CAD simulations and experimental tests.



**139,09 €**

129,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

**Artikelnummer:** 9783030089733

**Medium:** Buch

**ISBN:** 978-3-030-08973-3

**Verlag:** Springer International Publishing

**Erscheinungstermin:** 24.01.2019

**Sprache(n):** Englisch

**Auflage:** Softcover Nachdruck of the original 1. Auflage 2018

**Serie:** Mechanisms and Machine Science

**Produktform:** Kartoniert

**Gewicht:** 306 g

**Seiten:** 188

**Format (B x H):** 155 x 235 mm

