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Titolo	Worm-like locomotion systems : an intermediate theoretical approach / / Joachim Steigenberger, Carsten Behn
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ISBN	3-486-71987-4
Descrizione fisica	1 online resource (207 p.)
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Disciplina	621
Soggetti	Mechanical movements - Mathematical models Worms - Locomotion - Mathematical models Propulsion systems - Mathematical models Friction - Mathematical models Adaptive control systems - Mathematical models
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Matter -- 1 Introduction -- 2 The Straight Worm With Propulsive Spikes ("Spiky") -- 3 The Straight Worm With Propulsive "Friction" -- 4 Adaptive Control of Worms -- 5 Conclusions -- A Mathematical Concepts -- B Mechanical Concepts -- C Control Theory Concepts -- D Notes on Simulation Parameters -- E Some Program Source Codes -- Back Matter
Sommario/riassunto	The book in hand grew out of the authors' current research and their long-continued experience in teaching mathematics and mechanics. In a wide sense, it aims at mathematical modeling of mechanical objects and their exploitation. This is done in a bit unconventional way by concentrating on the special object class worm-like locomotion systems and in proceeding with no use of recent sophisticated mathematical tools which most likely cannot be handled by freshmen in engineering or mathematics. Nevertheless, this does not harm the stringent line the physical object to the analytical interpretation of the final mathematical model. The basic model spiked worm in a straight line enables the authors to come up with a fairly self-contained theory which then allows one to study effects of friction and control. The

considered system class has its importance in practice (motion in narrow canals, e.g.), but this book is not with an orientation to design and application, the theory developed here should rather be seen as a contribution to bionics.
