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	Edizione	[1st edition]
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	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Role of simulation in the design cycle of complex technological systems -- Fundamental concepts of lumped parameter-based multi-physics modeling -- Setting up a lumped parameter model -- Numerical simulation of multi-physics systems -- Dynamic performance analysis tools -- Mechanical and electromechanical power transmissions -- Power transmission by low-compressibility fluids -- Heat power transmission -- Thermal power conversion.
	Sommario/riassunto	The development of mechatronic and multidomain technological systems requires the dynamic behavior to be simulated before detailed CAD geometry is available. This book presents the fundamental concepts of multiphysics modeling with lumped parameters. The approach adopted in this book, based on examples, is to start from the physical concepts, move on to the models and their numerical implementation, and finish with their analysis. With this practical problem-solving approach, the reader will gain a deep understanding of multiphysics modeling of mechatronic or technological systems – mixing mechanical power transmissions, electrical circuits, heat transfer devices and electromechanical or fluid power actuators. Most of the book's examples are made using Modelica platforms, but they can easily be implemented in other 0D/1D multidomain physical

system simulation environments such as Amesim, Simulink/Simscape, VHDL-AMS and so on.