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Nota di contenuto	INTRODUCTION -- Materials Matter: Introduction / Michael Friedman and Karin Krauthausen -- On the Activity of Materials / Peter Fratzl and Wolfgang Schaffner -- INTERVIEWS: SCIENTISTS ON ACTIVE MATTER -- Interview with Thomas Speck: "You Don't Want to Build an Oak Tree - You Want to Invent It." Plants as Active Matter / Michael Friedman, Karin Krauthausen and Thomas Speck -- On Responsive and Adaptive Materials / Joanna Aizenberg, Michael Friedman and Karin Krauthausen -- Interview with John Dunlop: Shape-Changing Materials / John Dunlop and Karin Krauthausen -- Interview with Jean-Francois Joanny: Activity, Instabilities, and Defects / Michael Friedman, Jean-Francois Joanny and Karin Krauthausen -- Interview with Barbara Mazzolai: Plants, Plantoids, and Active Materials / Michael Friedman, Karin Krauthausen and Barbara Mazzolai -- Interview with Robert Shepherd: On Soft Robots, Biomimetics, and Beyond / Michael Friedman, Karin Krauthausen and Robert Shepherd -- Interview with Ramin Golestanian: Living Matter, or What Is Life? / Michael Friedman, Ramin Golestanian and Karin Krauthausen -- Interview with Nikolaus Correll: Robotic Materials / Nikolaus Correll, Michael Friedman and Karin Krauthausen -- ESSAYS: PART 1: CULTURAL, SCIENTIFIC, AND DESIGN PERSPECTIVES -- Rethinking Active Matter: Current Developments in Active Materials -- 1 What Is Activity? An Introduction / Mohammad Fardin Gholami,

Lorenzo Guiducci, Susanne Jany and Khashayar Razghandi -- Matter of Agency: Active Materials in Digital Design Research / Ianis Lallemand -- ESSAYS: PART 2: HISTORICAL AND PHILOSOPHICAL PERSPECTIVES -- Unsystematic Vitality: From Early Modern Beeswarms to Contemporary Swarm Intelligence / Sylvie Kleiman-Lafon and Charles T. Wolfe -- Leibniz's Concept of Agens in Matter, Space, and Image -- 1 The Metaphysical Force of Nature / Horst Bredekamp -- Rhetoric's Active Matters -- 1 Preliminary Remarks / Stephan Kammer -- Proteins as Monads / Sonia Dheur and Sven J. Saupe -- Index.

Sommario/riassunto

What are active materials? This book aims to introduce and redefine conceptions of matter by considering materials as entities that 'sense' and respond to their environment. By examining the modeling of, the experiments on, and the construction of these materials, and by developing a theory of their structure, their collective activity, and their functionality, this volume identifies and develops a novel scientific approach to active materials. Moreover, essays on the history and philosophy of metallurgy, chemistry, biology, and materials science provide these various approaches to active materials with a historical and cultural context. The interviews with experts from the natural sciences included in this volume develop new understandings of 'active matter' and active materials in relation to a range of research objects and from the perspective of different scientific disciplines, including biology, physics, chemistry, and materials science. These insights are complemented by contributions on the activity of matter and materials from the humanities and the design field. Discusses the mechanisms of active materials and their various conceptualizations in materials science. Redefines conceptions of active materials through interviews with experts from the natural sciences. Contextualizes, historizes, and reflects on different notions of matter/materials and activity through contributions from the humanities. A highly interdisciplinary approach to a cutting-edge research topic, with contributions from both the sciences and the humanities.--
