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Sommario/riassunto	This book focuses on the processing, potential, and new applications of magnesium alloy systems. To date, the automotive industry uses the unique properties of magnesium alloys on the largest scale. However, scientists propose the use of magnesium and its alloys in many new areas and industries. As such, this book describes and reports on the progress of research on magnesium alloys, for example, in the oil and gas, implantology, and thermoelectric industries. Due to their availability and relatively high mechanical properties combined with low density, magnesium alloys are a dynamically developed group of light metal alloys. Both scientists and industrial centers are involved in expanding the application possibilities of magnesium-based alloys. New applications proposed in this book are examined in relation to technology, functional properties, and potential of the tested materials. The book also examines related challenges of magnesium-based alloys, including implementation problems, encountered barriers and problems to be solved in the scope of the proposed application were described also.