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   Nota di contenuto   Front matter -- Contents -- Preface -- Chapter One. Tonelli
                        Lagrangians and Hamiltonians on Compact Manifolds -- Chapter Two.
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                        Minimizing Invariant Measures for Tonelli Lagrangians -- Chapter Four.
                        Action-Minimizing Curves for Tonelli Lagrangians -- Chapter Five. The
                        Hamilton-Jacobi Equation and Weak KAM Theory -- Appendices --
                        Appendix A. On the Existence of Invariant Lagrangian Graphs --
                        Appendix B. Schwartzman Asymptotic Cycle and Dynamics --
                        Bibliography -- Index

   Sommario/riassunto   John Mather's seminal works in Hamiltonian dynamics represent some
                        of the most important contributions to our understanding of the
                        complex balance between stable and unstable motions in classical
                        mechanics. His novel approach-known as Aubry-Mather theory-singles
                        out the existence of special orbits and invariant measures of the
                        system, which possess a very rich dynamical and geometric structure.
                        In particular, the associated invariant sets play a leading role in
                        determining the global dynamics of the system. This book provides a
                        comprehensive introduction to Mather's theory, and can serve as an
                        interdisciplinary bridge for researchers and students from different
                        fields seeking to acquaint themselves with the topic.Starting with the
                        mathematical background from which Mather's theory was born,

Alfonso Sorrentino first focuses on the core questions the theory aims to answer-notably the destiny of broken invariant KAM tori and the onset of chaos-and describes how it can be viewed as a natural counterpart of KAM theory. He achieves this by guiding readers through a detailed illustrative example, which also provides the basis for introducing the main ideas and concepts of the general theory. Sorrentino then describes the whole theory and its subsequent developments and applications in their full generality.Shedding new light on John Mather's revolutionary ideas, this book is certain to become a foundational text in the modern study of Hamiltonian systems.