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Nota di contenuto	Introduction and Main Results -- Morse vs DG Morse Homology Toolset -- Comparison of the Barraud-Cornea Cocycle and the Brown Cocycle -- Algebraic Properties of Twisted Complexes -- Morse Homology with DG-Coefficients: Construction -- Morse Homology with DG-Coefficients: Invariance -- Fibrations -- Functoriality: General Properties -- Functoriality: First Definition -- Functoriality: Second Definition. Cohomology and Poincaré Duality -- Shriek Maps and Poincaré Duality for Non-Orientable Manifolds -- Beyond the Case of Manifolds of Finite Dimension -- Appendix: Comparison of Geometry and Analytic Orientations in Morse Theory.
Sommario/riassunto	The key geometric objects underlying Morse homology are the moduli spaces of connecting gradient trajectories between critical points of a Morse function. The basic question in this context is the following: How much of the topology of the underlying manifold is visible using moduli spaces of connecting trajectories? The answer provided by “classical” Morse homology as developed over the last 35 years is that the moduli spaces of isolated connecting gradient trajectories recover the chain homotopy type of the singular chain complex. The purpose of this

monograph is to extend this further: the fundamental classes of the compactified moduli spaces of connecting gradient trajectories allow the construction of a twisting cocycle akin to Brown's universal twisting cocycle. As a consequence, the authors define (and compute) Morse homology with coefficients in any differential graded (DG) local system. As particular cases of their construction, they retrieve the singular homology of the total space of Hurewicz fibrations and the usual (Morse) homology with local coefficients. A full theory of Morse homology with DG coefficients is developed, featuring continuation maps, invariance, functoriality, and duality. Beyond applications to topology, this is intended to serve as a blueprint for analogous constructions in Floer theory. The new material and methods presented in the text will be of interest to a broad range of researchers in topology and symplectic topology. At the same time, the authors are particularly careful to give gentle introductions to the main topics and have structured the text so that it can be easily read at various degrees of detail. As such, the book should already be accessible and of interest to graduate students with a general interest in algebra and topology. .