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Titolo	Oscillatory Integrals and Phenomena Beyond all Algebraic Orders [[electronic resource]] : with Applications to Homoclinic Orbits in Reversible Systems / / by Eric Lombardi
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Collana	Lecture Notes in Mathematics, , 0075-8434 ; ; 1741
Disciplina	515.35
Soggetti	Mathematical analysis Analysis (Mathematics) Statistical physics Dynamical systems Analysis Complex Systems Statistical Physics and Dynamical Systems
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Nota di bibliografia	Includes bibliographical references (pages [405]-410) and index.
Nota di contenuto	"Exponential tools" for evaluating oscillatory integrals -- Resonances of reversible vector fields -- Analytic description of periodic orbits bifurcating from a pair of simple purely imaginary eigenvalues -- Constructive floquet theory for periodic matrices near a constant one -- Inversion of affine equations around reversible homoclinic connections -- The $02+i?$ resonance -- The $02+i?$ resonance in infinite dimensions. Application to water waves -- The $(i?0)2i?1$ resonance.
Sommario/riassunto	During the last two decades, in several branches of science (water waves, crystal growth, travelling waves in one dimensional lattices, splitting of separatrices,...) different problems appeared in which the key point is the computation of exponentially small terms. This self- contained monograph gives new and rigorous mathematical tools which enable a systematic study of such problems. Starting with elementary illuminating examples, the book contains (i) new asymptotical tools for obtaining exponentially small equivalents of

oscillatory integrals involving solutions of nonlinear differential equations; (ii) implementation of these tools for solving old open problems of bifurcation theory such as existence of homoclinic connections near resonances in reversible systems.
