

1. Record Nr.	UNINA9910300423203321
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Titolo	Multidimensional Periodic Schrödinger Operator : Perturbation Theory and Applications / / by Oktay Veliev
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2015
ISBN	3-319-16643-3
Edizione	[1st ed. 2015.]
Descrizione fisica	1 online resource (X, 242 p.)
Collana	Springer Tracts in Modern Physics, , 0081-3869 ; ; 263
Disciplina	515.724
Soggetti	Quantum theory Solid state physics Mathematical physics Quantum Physics Solid State Physics Mathematical Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface -- Asymptotic Formulas for the Bloch Eigenvalues and Bloch Functions -- Constructive Determination of the Spectral Invariants -- Periodic Potential from the Spectral Invariants -- Conclusions.
Sommario/riassunto	The book describes the direct problems and the inverse problem of the multidimensional Schrödinger operator with a periodic potential. This concerns perturbation theory and constructive determination of the spectral invariants and finding the periodic potential from the given Bloch eigenvalues. The unique method of this book derives the asymptotic formulas for Bloch eigenvalues and Bloch functions for arbitrary dimension. Moreover, the measure of the iso-energetic surfaces in the high energy region is construct and estimated. It implies the validity of the Bethe-Sommerfeld conjecture for arbitrary dimensions and arbitrary lattices. Using the perturbation theory constructed in this book, the spectral invariants of the multidimensional operator from the given Bloch eigenvalues are determined. Some of these invariants are explicitly expressed by the Fourier coefficients of the potential. This way the possibility to

determine the potential constructively by using Bloch eigenvalues as input data is given. In the end an algorithm for the unique determination of the potential is given.
