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Titolo	Nearly integrable infinite-dimensional hamiltonian systems / / Sergej B. Kuksin
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Descrizione fisica	1 online resource (XXVIII, 104 p.)
Collana	Lecture Notes in Mathematics
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Nota di contenuto	Symplectic structures and hamiltonian systems in scales of hilbert spaces -- Statement of the main theorem and its consequences -- Proof of the main theorem.
Sommario/riassunto	The book is devoted to partial differential equations of Hamiltonian form, close to integrable equations. For such equations a KAM-like theorem is proved, stating that solutions of the unperturbed equation that are quasiperiodic in time mostly persist in the perturbed one. The theorem is applied to classical nonlinear PDE's with one-dimensional space variable such as the nonlinear string and nonlinear Schrödinger equation and show that the equations have "regular" (=time-quasiperiodic and time-periodic) solutions in rich supply. These results cannot be obtained by other techniques. The book will thus be of interest to mathematicians and physicists working with nonlinear PDE's. An extensive summary of the results and of related topics is provided in the Introduction. All the nontraditional material used is discussed in the first part of the book and in five appendices.