

**Helffer, Bernard; Pankrashkin, Konstantin****Semiclassical reduction for magnetic Schrödinger operator with periodic zero-range potentials and applications.** (English) [Zbl 1185.35043](#)[Asymptotic Anal.](#) 63, No. 1-2, 1-27 (2009).

Authors' abstract: The two-dimensional Schrödinger operator with a uniform magnetic field and a periodic zero-range potential is considered. For weak magnetic fields and a weak coupling we reduce the spectral problem to the semiclassical analysis of one-dimensional Harper-like operators. This shows the existence of parts of Cantor structure in the spectrum for special values of the magnetic flux.

Reviewer: [Nils Ackermann \(México\)](#)**MSC:**[35J10](#) Schrödinger operator, Schrödinger equation[35P05](#) General topics in linear spectral theory for PDEs[47G30](#) Pseudodifferential operators[47N50](#) Applications of operator theory in the physical sciences[81Q20](#) Semiclassical techniques, including WKB and Maslov methods applied to problems in quantum theory**Keywords:**[Schrödinger operator](#); [periodic potential](#); [magnetic flux](#); [semiclassical analysis](#); [Cantor set](#); [Harper-like operators](#)**Full Text:** [DOI](#) [arXiv](#)