Bentosela, F.; **Briet, P.**

Stark resonances for random potentials of Anderson type. (English) Zbl 0955.47044

Ann. Inst. Henri Poincaré, Phys. Théor. 71, No. 5, 497-538 (1999).

The paper is devoted to the study of the spectral properties of the Hamiltonian of an electron moving in a random potential and subject to an exterior constant electric field. $H_\omega(F) = -\frac{d^2}{dx^2} + \sigma\omega_j u_j(x-j) + F(x)$, $(F > 0)$ on $\mathcal{H} = L^2(R)$. The atomic potentials U_j re supposed to be negative and vanishing at ∞. The coupling constants ω_j are independent random variables. A resonance is defined as a pole of some matrix elements of the resolvent operator. The investigation makes use of the analytical distortion method (Hunziker). The authors prove the existence of resonances with a width exponentially small with respect to the intensity of the field.

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MSC:

47N50 Applications of operator theory in the physical sciences
81V70 Many-body theory; quantum Hall effect
34L40 Particular ordinary differential operators (Dirac, one-dimensional Schrödinger, etc.)

Keywords:

random potentials of Anderson type; Schrödinger operator; disorder systems; Stark-Wainner resonances; spectral properties; Hamiltonian; electron moving in a random potential; exterior constant electric field; coupling constants; resolvent operator; analytical distortion method

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