1057-35-210 **S. Molchanov** and **B. Vainberg*** (brvainbe@uncc.edu). *On negative spectrum for perturbations of the Anderson Hamiltonian.*

Consider the Anderson Hamiltonian on $L^2(R^d)$

$$H_0 = -\Delta + hV(x,\omega),\ x \in R^d,\ \omega \in (\Omega, F, P).$$

The potential has the simplest Bernoulli structure. Let $R^d = \bigcup Q_n$ be a partition of R^d onto unit cubes $Q_n,\ n \in Z^d$. Then

$$V(x,\omega) = \sum_{n \in Z^d} \varepsilon_n I_{Q_n}(x),$$

where ε_n are i.i.d.r.v., $P\{\varepsilon_n = 1\} = p > 0, \quad P\{\varepsilon_n = 0\} = 1 - p > 0$.

Consider a perturbation of H_0 by a non-random continuous potential:

$$H = -\Delta + hV(x,\omega) - w(x), \quad w(x) \geq 0, \quad w \to 0,\ |x| \to \infty.$$

We will discuss the proof of the following statement. Put $N_0(w,\omega) = \#\{\lambda_i \leq 0\}$.

There are two constants $c_1 < c_2$ (which depend on d only) such that the condition

$$w(x) \leq \frac{c_1}{\ln^{\frac{2}{d}}(2+|x|)\ln 1/(1-p)}, \quad |x| \to \infty,$$

implies $N_0(w,\omega) < \infty$ P-a.s., and the inverse inequality (with c_2 instead of c_1) implies $N_0(w,\omega) = \infty$ P-a.s.. (Received January 22, 2010)