Talk for seminar

TOWARDS INTEGRATED DENSITY OF STATES FOR DECAYING RANDOMNESS

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We investigate some bounds for the Integrated density of states in the pure point regime for the random schrödinger operators $H^\omega = -\Delta + \sum_{n \in \mathbb{Z}^d} a_n q_n(\omega)$ acting on $\ell^2(\mathbb{Z}^d)$, where $a_n \simeq |n|^{-\alpha}$, $\alpha > 0$ and $\{q_n\}$ are iid random variable with common distribution μ $(\frac{d\mu}{dx}(x) = |x|^{-\delta}$ for large $|x|$). In [1] it was shown that for the above model $\sigma(H^\omega) = \mathbb{R}$ and $\sigma_c(H^\omega) \subseteq [-2d, 2d]$ for a.e ω. For $\alpha > 1$, the absence of singular spectrum inside $[-2d, 2d]$ was shown by Jaksic-Last [2]. Also I would like to discuss the eigenvalue statistics of finite approximation of H^ω in both the regime (continuous and pure point) of the spectrum.

References

[1] Kirsch, W; Krishna, M; Obermeit, J: *Anderson model with decaying randomness: mobility edge*, Math.Z. **235(3)**, 421-433, 2000.

[2] Jaksic, Vojkan; Last, Yoram: *Spectral structure of Anderson type Hamiltonians*, Invent. Math, **141(3)**, 561-577, 2000.

[3] Dolai, Dhriti; Krishna, M: *Level Repulsion for a class of decaying random potentials*, Markov Processes and Related Fields **21(3)**, 449-462, 2015.

[4] Dolai, Dhriti: *Some estimates regarding Integrated density of States for random Schrödinger operator with decaying random potentials*, arxiv 1501.05055 (math.SP).