

[P18] Irrational anomalies in one-dimensional Anderson localization*Reza Sepehrinia, IPM*

We revisit the problem of one-dimensional Anderson localization, providing perturbative expression for Lyapunov Exponent of Anderson model with next-nearest-neighbor hopping. By comparison with exact numerical results, we discuss the range of validity of the naive perturbation theory. The stability of band center anomaly is examined against the introduction of nnn-hopping. New anomalies of Kappus-Wegner type emerge at non-universal values of wavelength when hopping to second neighbor is allowed. It is shown that covariances in the first order of perturbation theory, develop singularities at these resonant energies which enable us to locate them.