1085-82-158 **Abel Klein*** (akleinQuci.edu), University of California, Irvine, Department of Mathematics, Irvine, CA 92697-3875. *Unique continuation principle for spectral projections of Schrödinger operators and Optimal Wegner estimates for non-ergodic random Schrödinger operators.* Preliminary report.

We prove a unique continuation principle for spectral projections of Schrödinger operators. We consider a Schrödinger operator $H = -\Delta + V$ on $\mathrm{L}^2(\mathbb{R}^d)$, and let H_Λ denote its restriction to a finite box Λ with either Dirichlet or periodic boundary condition. We prove unique continuation estimates of the type $\chi_I(H_\Lambda) W \chi_I(H_\Lambda) \geq \kappa\, \chi_I(H_\Lambda)$ with $\kappa > 0$ for appropriate potentials $W \geq 0$ and intervals I. As an application, we obtain optimal Wegner estimates at all energies for a class of non-ergodic random Schrödinger operators with alloy-type random potentials ('crooked' Anderson Hamiltonians). We also prove optimal Wegner estimates at the bottom of the spectrum with the expected dependence on the disorder (the Wegner estimate improves as the disorder increases), a new result even for the usual (ergodic) Anderson Hamiltonian. These estimates are applied to prove localization at high disorder for Anderson Hamiltonians in a fixed interval at the bottom of the spectrum. (Received September 07, 2012)