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Artur Avila and **Svetlana Jitomirskaya*** (szhitomi@uci.edu), Dept. of mathematics, UCI, Irvine, CA 92697. *Quasiperiodic operators with analytic potential at low coupling: sharp non-perturbative results.* Preliminary report.

We will discuss recent results on analytic Schrodinger cocycles at small couplings, with applications including the dry version of Ten Martini problem and $1/2$ -Holder continuity of the integrated density of states for Diophantine frequencies. Bloch structure of solutions is equivalent to the analytic reducibility of cocycle and is linked to the existence of localized eigenfunctions for the dual model. However, there is a generic set of energies in the spectrum for which no localized eigenfunctions exist. For such energies the solutions are still linked through a possibly divergent Fourier series. We show that for all energies there are solutions (for the dual model) that are localized on a large set, between a sparse sequence of resonances. This allows to give sharp estimates on the dynamics (and therefore solutions) for all energies. (Received March 06, 2006)