

**Meeting:** 1001, Evanston, Illinois, SS 16A, Special Session on Spectral Problems of Differential Operators

1001-47-226            **Boris Mityagin\*** (mityagin.1@osu.edu), 231 West 18th Ave, Columbus, OH 43210, and  
                         **Plamen Djakov.** *Simple and double eigenvalues of the Hill operator with a two term potential.*

We analyze the instability zones and multiplicities of eigenvalues of Hill operator with a two term potential  $Ly = -y'' + a \cos 2x + b \cos 4x$ , with parametrization of its coefficients  $a = -4qt$ ,  $b = -2q^2$ . A proper gauge transform (W. Magnus and S. Winkler) kills a higher frequency and gives us a chance to realize the similar to L operator with a thridiagonal matrix  $K$ . We sharpen Magnus/Winkler results on multiplicity of the  $L$ 's eigenvalues and give complete structure of the spectrum  $\text{Sp}(L)$  with periodic and antiperiodic boundary conditions. (Received August 27, 2004)