962-39-780 **Alexei V Bourd*** (`abourd@qualcomm.com`), 10310 Caminito Agadir, San Diego, CA 92131.
Asymptotic behavior of solutions of difference adiabatic oscillator. Preliminary report.

We investigate the asymptotic behavior of solutions of the equation

$$x(n+2) - (2\cos\alpha)x(n+1) + (1 + g(n))x(n) = 0, \quad n = 0, 1, \ldots, \tag{1}$$

where $0 < \cos\alpha < 1$, $g(n)$ is a "small" perturbation in certain sense. We say that equation (1) is in non-resonant case if the series

$$\sum_{k=n}^{\infty} g(k)\sin 2k\alpha, \quad \sum_{k=n}^{\infty} g(k)\cos 2k\alpha, \quad n \geq n_0 \tag{2}$$

converges. In resonant case series (2) diverges. The non-resonant and resonant cases are considered. The asymptotic representation of a fundamental system of solutions for $n \to \infty$ is obtained. (Received September 26, 2000)

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