1077-11-131 **Himadri Ganguli*** (hganguli@sfu.ca), 8888 University Drive, Department of Mathematics, Burnaby, BC V5A1S6, Canada. *On the behaviour of the Liouville function on polynomials with integer coefficients.*

Let $\lambda(n)$ denote the Liouville function. Complementary to the prime number theorem, Chowla conjectured that

Conjecture (Chowla).

$$\sum_{n \leq x} \lambda(f(n)) = o(x)$$

for any polynomial $f(x)$ with integer coefficients, not in the form of $bg^2(x)$, where b is a constant.

Chowla's conjecture is proved for linear functions but for the degree greater than 1, the conjecture seems to be extremely hard and still remains wide open. One can consider a weaker form of Chowla's conjecture, namely,

Conjecture 1 (Cassaigne, et al). *If $f(x) \in \mathbb{Z}[x]$ and is not in the form of $bg^2(x)$ for some $g(x) \in \mathbb{Z}[x]$ and constant b, then $\lambda(f(n))$ changes signs infinitely often.*

Although it is weaker, Conjecture 1 is still wide open for polynomials of degree > 1. In this talk, I will describe some recent progress made while studying Conjecture 1 for the quadratic polynomials. This is joint work with Peter Borwein and Stephen Choi. (Received July 28, 2011)