1077-42-1308 **Faruk F. Abi-Khuzam*** (farukakh@aub.edu.lb), Department of Mathematics, American University of Beirut, Beirut, Lebanon. *On the WAT conjecture on the Torus.*

Let $f \in L^\infty(T^d)$ with $\|f\|_{L^\infty(T^d)} \leq 1$, $\nu \in \mathbb{Z}^d, n, k \in \mathbb{Z}$ and put $b_{n,n-k} = \int_E f(x)^n e^{-2\pi i(n-k)\nu\cdot x} dx$, $E = \{x \in T^d : |f(x)| = 1\}$. Shayya conjectured that, if $\hat{f}(\xi) = 0$ for all ξ in a half-space S of lattice points, and $\nu \in -S$, and $\hat{f}(0) \neq 0$, then $\lim_{n\to\infty} b_{n,n-k} = 0, k \in \mathbb{Z}$. This is a higher dimensional version of an earlier conjecture of Nazarov and Shapiro, the truth of which would imply that any composition operator is weakly asymptotically Toeplitz on the Hardy space H^2. For $k = 0$, Shayya proved that the arithmetic means of $\{b_{n,n}\}$ decay like $\{\log N\}^{-1}$. We prove that the arithmetic means of $\{b_{n,n-k}\}$ decay like $\{\log N \log\log N\}^{-1}$ uniformly in $k \in \mathbb{Z}$. (Received September 19, 2011)