1087-42-55 **Oleksandr (Alexander) V Tovstolis*** (atovstolis@math.okstate.edu), Department of Mathematics, Oklahoma State University, 401 Mathematical Sciences, Stillwater, OK 74078.

*Fourier Multipliers in Hardy Spaces and Some Inequalities of Approximation Theory.*

Let $\mathcal{M}_{p,q}(T_\Gamma)$ denotes the class of Fourier multipliers from $H^p(T_\Gamma)$ to $H^q(T_\Gamma)$, $0 < p \leq q \leq 1$, in tubes over a regular cone $\Gamma \subset \mathbb{R}^n$ (i.e., the dual cone, $\Gamma^*$, has non-empty interior).

Several conditions for multipliers are obtained. They could be successfully applied to problems of Approximation Theory. For example, the critical index for Bochner-Riesz means was found.

If a function belonging to $H^p$ is also an entire function of exponential type, then the following Bernstein-type inequality holds true.

**Theorem 1** *Let $p \in (0, \infty)$, and $K$ be a symmetric body in $\mathbb{R}^n$. Then, for $f \in \mathcal{E}(K^*) \cap H^p(T_\Gamma)$ and a multi-index $k = (k_1, \ldots, k_n)$,*

$$\left\| \frac{\partial^{|k|} f}{\partial z_1^{k_1} \ldots \partial z_n^{k_n}} \right\|_{H^p} \leq (2\pi)^{|k|} \prod_{j=1}^{n} \sigma_j^{k_j} \|f\|_{H^p},$$

*where $\sigma_j := \max_{t \in K \cap \Gamma^*} |t_j|$, $|k| = k_1 + \cdots + k_n$.*

Some Nikolskii's type inequalities are also obtained. (Received November 24, 2012)