1057-42-304 **Alexander Fish**, **Fedor Nazarov** and **Dmitry Ryabogin*** (ryabogin@math.kent.edu), 122 Chesterton Lane, Aurora, OH 44202, and **Artem Zvavitch**. *On the $L^p(S^{n-1})$, $1 \le p \le \infty$, boundedness of the smooth multiplier operator on the unit sphere S^{n-1} in R^n.*

This is a part of a joint work with Alexander Fish, Fedor Nazarov and Artem Zvavitch. Let ϕ be an infinitely smooth function with a compact support (a Mexican hat function) on the real line. For every $n \in N$ consider the multiplier operator on the unit sphere,

$$f \ \sum_{k=0}^{\infty} H_k^f \rightarrow \sum_{k=0}^{\infty} \phi(k/n) H_k^f,$$

where H_k^f stands for a "zonal block" of spherical harmonics of degree k. We give a short proof of the (should be well-known) fact that a convolution operator $f \rightarrow M_n f$ generated by the above multiplier is bounded on $L^p(S^{n-1})$ for all $1 \le p \le \infty$, i.e. $\|M_n f\|_{L^p(S^{n-1})} \le c\,\|f\|_{L^p(S^{n-1})}$, and c is independent of n. (Received January 25, 2010)