1106-30-1090 **Alexander (Oleksandr) V Tovstolis*** (atovstolis@math.okstate.edu), Oklahoma State University, Departmant of Mathematics, 401 Mathematical Sciences, Stillwater, OK 74078. *On the Mahler Measure of the Hadamard Product of Polynomials.*

The Hadamard Product of two polynomials $P(z) = \sum_{k=0}^{n} p_k z^k$ and $Q(z) = \sum_{k=0}^{n} q_k z^k$ is given by $(P * Q)(z) = \sum_{k=0}^{n} p_k q_k z^k$.

For Hardy spaces H^p $(0 < p \le \infty)$ and the space of Mahler measure, H^0, in the unit disk $\mathbb{D}$ of the complex plane, we obtained the following estimate:

$$\|P * Q\|_{H^p} \le \|\Theta_n\|_{H^0} \|P\|_{H^0} \|Q\|_{H^p}, \quad 0 \le p \le \infty, \tag{1}$$

where

$$\Theta_n(z) := \sum_{k=0}^{n} \binom{n}{k}^2 z^k.$$

For $p = 0$, equality in (1) is achievable, e.g., taking $P(z) = Q(z) = (1+z)^n$.

Furthermore,

$$\lim_{n\to\infty} \|\Theta_n\|_{H^0}^{1/n} = \exp\left(\frac{4G}{\pi}\right) \approx 3.20991230072\cdots,$$

where $G = \sum_{m=0}^{\infty} \frac{(-1)^m}{(2m+1)^2}$ is Catalan's constant.

As an illustration of the method, estimates for the Mahler measure and the H^p-pre-norm of the odd and even parts of a polynomial were derived. (Received September 10, 2014)