Pritha Chakraborty* (pritha.chakraborty@ttu.edu), Texas Tech University, Department of Mathematics & Statistics, Broadway & Boston, Lubbock, TX 79409, and Alexander Yu. Solynin. Extremal Problems in Bergman spaces. Preliminary report.

In 1991, Boris Korenblum conjectured and Walter Hayman proved in 1992 that for $f, g \in A^2(\mathbb{D})$, there is a constant $c, 0 < c < 1$, such that if $|f(z)| \leq |g(z)|$ for all $z$ such that $c < |z| < 1$, then $\|f\|_2 \leq \|g\|_2$, where the Bergman space $A^2(\mathbb{D})$ is the set of analytic functions whose modulus is square integrable with respect to area measure with norm $\|f\|_2 = (\int_{\mathbb{D}} |f(z)|^2 \, dA(z))^{\frac{1}{2}}$. The largest possible value of such $c$ is called the Korenblum’s constant. The exact value of this constant, which is denoted by $\kappa$, remains unknown. In this talk, I will discuss some non-linear extremal problems in the Bergman space and prove some preliminary results which will shed some light on the Korenblum’s problem. (Received October 27, 2014)