1099-42-297 **Nicholas Boros*** (nboros@olivet.edu), Olivet Nazarene University, Department of Mathematics, One University Ave., Bourbonnais, IL 60914. *Matrix Weights, Littlewood Paley Inequalities and the Riesz Transform.*

We will discuss weighted estimates for the squares of the Riesz transforms $R_1^2, \dots, R_m^2$ on $L^2(W)$ where $W \in \mathbb{C}^{d\times d}$ is an A_2 weight. We will show that if the "Heat A_2 characteristic" of W is sufficiently close to 1 then there is a dimensional constant $c > 0$ such that

$$\|R_i^2\|_{2,W} \leq 1 + c\sqrt{[W]_{A_2^h} - 1},$$

for all $i = 1, \dots, m$. This is accomplished by proving a Littlewood–Paley estimate with the use of the Bellman function technique. This is a joint result with Nikolaos Pattakos. (Received February 11, 2014)