SUBCONVEXITY PROBLEM FOR THE RANKIN-SELBERG 
L-FUNCTIONS

RITABRATA MUNSHI

ABSTRACT. Suppose $f$ and $g$ are two newforms of level $N$ and $M$ respectively. If $N$ and 
$M$ are coprime then the ‘conductor’ of the Rankin-Selberg $L$-function $L(s, f \otimes g)$ is given 
by $(NM)^2$. The convexity bound for the $L$-function at the central point is then given by 

$$L(1/2, f \otimes g) \ll (NM)^{1/2},$$

where the implied constant depends on the weights of the forms. Improving this bound is 
an important problem in the analytic theory of $L$-functions. In this talk I will describe a 
recent joint work with Roman Holowinsky, where we establish a subconvexity bound of the 
form 

$$L(1/2, f \otimes g) \ll (NM)^{1/2-\delta}$$

for some positive $\delta$. 