

Meeting: 999, Nashville, Tennessee, SS 14A, Special Session on Graph Theory and Matroid Theory

999-05-216 **Paul N. Balister*** (balistep@msci.memphis.edu), Department of Mathematical Sciences,
University of Memphis, Memphis, TN 38152, and **András Gyárfás, Jenő Lehel** and **Richard
H. Schelp**. *Mono-multi bipartite Ramsey numbers, designs, and matrices.*

Eroh and Oellerman defined $BRR(G_1, G_2)$ as the smallest N such that any edge coloring of $K_{N,N}$ contains either a monochromatic G_1 or a multicolored G_2 . We restate the problem of determining $BRR(K_{1,\lambda}, K_{r,s})$ in matrix form and describe general bounds as well as some exact results in certain special cases. Our general bound uses Füredi's result on the fractional matching of uniform hypergraphs and we show that it is sharp if certain block designs exist. We also describe some results for the case $r = s = 2$: $BRR(K_{1,\lambda}, K_{2,2}) = 3\lambda - 2$ and the smallest n for which any edge coloring of $K_{\lambda,n}$ contains either a monochromatic $K_{1,\lambda}$ or a multicolored $K_{2,2}$ is λ^2 . (Received August 23, 2004)