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Mutually unbiased complex weighing matrices

A k -complex weighing matrix of order n and weight p is a matrix $CW(n, p)$ of order n with entries consisting of the k -th root of unity and $WW^* = pI_n$. Two k -complex $CW(n, p)$, H, K are called *unbiased* if the absolute value of the entries of HK^* equal \sqrt{p} . The class of mutually unbiased k -complex $CW(n, p)$ s for small values of n and p will be discussed. This is a joint work with D. Best and H. Ramp.