1112-05-129 **Yang Yang*** (yyang@math.wisc.edu), Department of Mathematics, University of Wisconsin, 480 Lincoln Drive, Madison, WI 53706. *Upper Triangular Matrices and Billiard Arrays.*

Fix a nonnegative integer d, a field $\mathbb{F}$, and a vector space V over $\mathbb{F}$ with dimension $d+1$. Let T denote an invertible upper triangular matrix in $\mathrm{Mat}_{d+1}(\mathbb{F})$. Using T we construct three flags on V. We find a necessary and sufficient condition on T for these three flags to be totally opposite. In this case, we use these three totally opposite flags to construct a Billiard Array B on V. It is known that B is determined up to isomorphism by a certain triangular array of scalar parameters called the B-values. We compute these B-values in terms of the entries of T. We describe the set of isomorphism classes of Billiard Arrays in terms of upper triangular matrices.

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