THE TRACE AS AN AVERAGE OVER THE UNIT SPHERE OF A NORMED SPACE WITH A 1–SYMMETRIC BASIS

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Abstract. We generalise the formula expressing the matrix trace of a given square matrix as the integral of the numerical values of $A$ over the Euclidean sphere to the unit spheres of finite-dimensional normed spaces that have a 1-symmetric basis. Our result is new even in the case of $\ell_p$-norms in $\mathbb{R}^N$ for $p \neq 2$.


Keywords and phrases: matrix trace; numerical range; hypersurface measure; hyperoctahedral group.

REFERENCES