Gradings and Involutions on Matrix Algebras

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Abstract. We will consider $\mathbb{F}$ an algebraically closed field of characteristic zero, G an Abelian group, and $\mathcal{A} := M_n(\mathbb{F})$ a Matrix algebra over $\mathbb{F}$ graded by G. In this presentation we are going to describe graded involutions on $\mathcal{A}$. We will show how this description is defined by a non-degenerate bilinear form and the two graded subspaces $K(\mathcal{A}, *)$ and $H(\mathcal{A}, *)$, respectively a Lie subalgebra and Jordan subalgebra, both arising due to the involution. The presentation is based on the results published in [1]-[4].

References

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