Color Involutions on Graded Associative Algebras

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Abstract. Let G an abelian group and F a field. In 2016 K. Sousa and I. Sviridova characterized primitive G-graded associative rings (F-algebras) with a minimal G-graded right ideal and a σ-involution in terms of nondegerate ε-hermitian sesquilinear graded forms, when G is a cyclic group of prime order and σ an anti-symmetric 2-cocycle. Also, there they left the open question: Is it possible to obtain this characterization when G is an abitrary finite abelian group?

In this talk we will present a positive answer to the above question when G is an arbitrary abelian group and σ an anti-symmetric bicharacter. This, as well as the characterization of Sousa and Sviridova, generalizes some results of Racine for superinvolutions [2], and of Bahturin, Bresăr and Kochetov for graded involutions [1]. This is a joint work with I. Sviridova.

References

[1] Yu. A. Bahturin, M. Bresăr, M. Kochetov, *Group gradings on finitary simple Lie algebras*, Int. J. Algebra Comp, **22** (2012), 125-146.

[2] M. L. Racine, *Primitive superalgebras with superinvolution*, J. Algebra, **206** (1998), 588-614.