

Classification of finite dimensional representations of quadratic algebras

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We consider noncommutative quadratic algebra of physical origin, so called RIT algebra of type (1,1). It is given by generators and relations. We describe all n -dimensional representations ρ_n of this algebra.

We show that for any n there are a finite number of equivalence classes of representations defined by a finite number of quivers.

From the structural point of view all images $A_n = \rho_n(RIT_{1,1})$ are basic algebras, i.e. semisimple parts of them are direct product of fields. We are able to describe explicitly the quotient by radical constructing complete system of orthogonal idempotents. One more nice fact to mention is that RIT algebra $R_{1,1}$ occur to be residually finite dimensional.