Algebraic Structures on Grothendieck Groups of a Tower of Algebras

HUILAN LI

Department of Mathematics and Statistics, York University, Canada, M3J 1P3, lihuilan@mathstat.yorku.ca

1. Motivation: There are pairs of Grothendieck groups of towers of algebras corresponding to these dual pairs of Hopf algebras. What were the right conditions to impose on a tower of algebras to get the desired algebraic structure on their Grothendieck groups?

2. Definition of Grothendieck Groups

3. Definition of Hopf Algebra

4. Axioms for a Tower of Algebras   Why these conditions?

5. Definitions of Multipilications, Comultiplications, Units and Counits on $G_0(A)$ and $K_0(A)$, respectively; a Pairing on $K_0(A) \times G_0(A)$; Result 1

6. Modification of Axiom (2)(a) and the Definitions of Inductions and Restrictions; Result 2