

SUPPORT EQUIVALENCES OF (CO)MODULE ALGEBRA STRUCTURES OVER HOPF ALGEBRAS

ANA AGORE

Abstract: We introduce the notion of *support equivalence* for (co)module algebras (over Hopf algebras), which generalizes in a natural way (weak) equivalence of gradings. We show that for each equivalence class of comodule algebra structures on a given algebra A , there exists a unique universal Hopf algebra H together with an H -comodule structure on A , which factors any other equivalent comodule algebra structure on A . We study support equivalence and these universal Hopf algebras for group-gradings, Hopf-Galois extensions, algebraic groups and cocommutative Hopf algebras. We argue how the notion of support equivalence can be used to reduce the classification problem of Hopf algebra (co)actions.

Joint work with Alexey Gordienko and Joost Vercauteren.