

SUMMARY INFORMATION OF NEW RESULTS OF THE PH.D THESIS

Title: *Tannakian duality over Dedekind ring and application*

Speciality: Algebra and Number theory

Speciality code: 9 46 01 04

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Location: Institute of Mathematics, Vietnam Academy of Science and Technology.

New results in my Ph.D thesis

1. We establish a new duality between affine flat group schemes and rigid tensor categories equipped with a fiber functor (called Tannakian lattice).
2. Using the above Tannakian dualities, we study morphisms between flat coalgebras as well as morphisms of flat affine group schemes. In particular, we give a criterion for the exactness of sequences of homomorphisms of flat affine group schemes over Dedekind rings. Next, the notions of locally finite coalgebras over Dedekind ring are mentioned. We show that the coordinate ring of a flat group scheme, the generic fiber of which is connected, is locally finite.
3. We also give a structure of affine flat group schemes over DVRs.
4. We study the flatness and projectivity of any Hopf algebras over their Hopf subalgebras. The faithful flatness for a Hopf algebra over its finite normal Hopf subalgebra follows from the corresponding properties on fibers and for the projectivity we need some conditions in terms of integrals of Hopf algebras.

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