**George Janelidze**

*ALGEBRAIC AND HOPF GALOIS THEORIES*

Let us call a Galois structure/theory *algebraic* if its ground adjunction is a coreflection between varieties of universal algebras determined by suitable *trivial elements*. This includes Magids extension of the classical Galois theory, which turned out to be determined by the adjunction between the varieties of commutative and of Boolean rings, where the trivial elements are idempotents (which was shown already in 1984). This also includes differential Galois theory and Galois theory of (finite so far!) distributive lattices, where the trivial elements are constants and complementary elements respectively, suggesting to consider core subvarieties in general.

That is, a *general-algebraic Galois theory* is, in a sense, dual to the *theory of central extensions*. Although its level of generality is clearly between the categorical and the classical one, it is still very undeveloped due to the difficulty of describing the relevant categorical notions there, specifically of effective (co)descent morphisms and of the so-called admissibility. Accordingly, even the above-mentioned examples are highly non-trivial.

When the subvariety involved is the variety of commutative rings, the resulting internal Galois groups become Hopf algebras, and the relationship with torsors and Hopf Galois theory becomes relevant.

The purpose of the talk is to explain what is outlined above, and hopefully add a ‘surprise’ that the author is not yet ready to mention in this abstract…