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**GASTÓN ANDRÉS GARCÍA**, Universidad Nacional de La Plata, Argentina

*On the determination of algebraic quantum subgroups*

Let  $G$  be a connected, simply connected, simple complex algebraic group. The purpose of this talk is to present an strategy to determine all (finite-dimensional) quantum subgroups of a given quantum group associated to  $G$  at roots of unity, or in equivalent terms, to determine all Hopf algebra quotients of a certain quantized coordinate algebra of  $G$  at roots of unity.

An important problem in the theory of quantum groups is the determination of the general properties that a quantum group should have, since up to date there is no axiomatic definition of an *algebraic* quantum group. In this sense, the description of all possible Hopf algebra quotients of a quantum function algebra, of the known examples would give some insight on the structure of the quantum group. This can be viewed as the quantum version of the classical problem of studying subgroups of a simple algebraic group.

This talk is based on joint work with N. Andruskiewitsch and J. Gutierrez, see [AG], [G] and [GG] for more details.

References

[AG] N. Andruskiewitsch and G. A. Garcia, Quantum Subgroups of a Simple Quantum Group at Roots of One. *Compos. Math.* 145 (2009), 476–500.

[G] G. A. Garcia, Quantum subgroups of  $GL_{\alpha,\beta}(n)$ . *J. Algebra* 324 (2010), 1392–1428.

[GG] G. A. Garcia and J. Gutierrez, Quantum subgroups of simple twisted quantum groups at roots of one. *Trans. Amer. Math. Soc.*, to appear. Preprint: arXiv:1601.00897.