

Quantum subgroups of $\mathcal{O}_q(SL_2(\mathbb{C}))$ at roots of unity of even order

Josefina Vallejos

Universidad Nacional del Sur

In this talk I will present recent results on quantum subgroups of the quantum group $\mathcal{O}_q(SL_2(\mathbb{C}))$ at roots of unity, that is, all Hopf algebra quotients of the quantized function algebra of $SL_2(\mathbb{C})$. This question might be seen as a quantum version of the classical problem of studying subgroups of a simple algebraic group. This problem was first considered by Eric Müller, who characterized all finite-dimensional Hopf algebra quotients of $\mathcal{O}_q(SL_n(\mathbb{C}))$ when q is a root of unity of odd order $\ell > 2$. I will show the results for the case where the order of q is even. Some problems arise when the order of q is even, for example, the very existence of the quantum Frobenius map, previous results cannot be used and new theory has to be developed. This is joint work with Gastón Andrés García.

In Special Session 9 on Hopf Algebras and Tensor Categories at the Mathematical Congress of the Americas 2025.