

Algebra, Combinatorics and Number Theory Seminar

Date. Thursday, December 12, 2024 - 4pm

Place. Room FC1 005

Speaker. Lucas Queiroz Pinto - Universidade de São Paulo (USP)

Title. Gelfand-Tsetlin Modules and Drinfeld Categories

Abstract.

In the context of the theory of Gelfand-Tsetlin modules, Drinfeld categories were introduced in 2017 by V. Futorny et al. to prove that every irreducible 1-singular Gelfand-Tsetlin module is isomorphic to a subquotient of the universal 1-singular Gelfand-Tsetlin module. The authors also observed that these categories could be used to generalize the classification of Gelfand-Tsetlin modules for $\mathfrak{sl}(n)$, which, at that time, was only known for $\mathfrak{sl}(3)$. In our studies, these categories have proven to be an effective visual tool for understanding the behavior of Gelfand-Tsetlin modules for $\mathfrak{sl}(3)$, as described by V. Futorny et al. in 2021.

In this talk, we will provide a brief introduction to Gelfand-Tsetlin modules and Drinfeld categories. Our goal is to understand the construction of Drinfeld quivers for simple cases, specifically for $\mathfrak{sl}(2)$ -modules and generic Gelfand-Tsetlin modules for $\mathfrak{sl}(3)$. We will also show how these quivers describe the structure of universal Gelfand-Tsetlin modules in each case.