

# **Seminário CEADEL\***

**19 de maio – 15:00 - sala 6.2.38**

## **Semisimple Hopf actions and factorization through group actions**

Deividi Pansera  
(University of Porto)

**Abstract:**

Let  $H$  be a Hopf algebra over a field  $F$  acting on an algebra  $A$ . Let  $I \subseteq \text{Ann}_H(A)$  be a Hopf ideal of  $H$ , then one says that the action of  $H$  on  $A$  *factors through* the quotient Hopf algebra  $H/I$ . If there exists  $I \subseteq \text{Ann}_H(A)$  such that  $H/I \cong F[G]$ , for some group  $G$ , we say that the action of  $H$  on  $A$  *factors through a group action*. In 2014, Etingof and Walton have shown that any semisimple Hopf action on a commutative domain factors through a group action [2]. Also in 2014, using their previous result, Cuadra, Etingof and Walton showed that any action of a semisimple Hopf algebra  $H$  on the  $n$ th Weyl algebra  $A = A_n(F)$ , with  $\text{char}(F) = 0$ , factors through a group action [1].

In this talk we will briefly present a generalization of Cuadra, Etingof and Walton's result. Namely, that any action of a semisimple Hopf algebra  $H$  on an iterated Ore extension of derivation type in characteristic zero factors through a group action [3]. We also present a work in progress on semisimple Hopf algebra actions on the quantum polynomial algebras which do not factor through a group actions.

This talk is all based on my upcoming Ph.D. Thesis under the supervision of Christian Lomp.

Joint work with Christian Lomp

*Seminário financiado por Fundos Nacionais através da  
FCT – Fundação para a Ciência e Tecnologia  
no âmbito do projeto UID/MAT/04721/2013*

**\*Centro de Análise Funcional, Estruturas Lineares e Aplicações**

Faculdade de Ciências da Universidade de Lisboa  
Edf. C6 – Piso 2 – sala 6.2.38