The 3rd Combinatorics Day

Saturday, 2nd of March of 2013

room 8.2.23, in C8, FCUL

Abstracts

14:45-15:30 **Samuel Lopes** (CMUP,UP):

Combinatorics gone Weyl

Abstract: The multiplication and differentiation operators x and d/dx generate the Weyl algebra. More generally, given a nonzero polynomial $h = h(x)$, let y be the operator $h.d/dx$, so that x and y satisfy the commutation relation $[y, x] = h$. The associative and unital algebra generated by x and y is denoted by A_h and is a subalgebra of the Weyl algebra. For suitable choices of h we obtain the Weyl algebra, the enveloping algebra of the two-dimensional non-abelian Lie algebra, and the Jordan plane. Some interesting combinatorics emerge from the representation theory of the algebras A_h over fields of arbitrary characteristic. We will discuss these and phrase them in the language of partitions. This is joint work in progress with Georgia Benkart and Matt Ondrus.