U LISBOA | UNIVERSIDADE DE LISBOA

# Seminário CEMAT-Ciências*

## 30 de Maio - sala 6.2.33

## 15:30
## A Munn tree type representation for the bifree locally inverse semigroup

Luís Oliveira (CMUP)

Abstract:
There are two traditional approaches to the free inverse monoid. Scheiblich's approach as pairs (A,u) where A is a "closed" set of group words and u belongs to A, and Munn's approach where the elements of the free inverse monoid are represented as birooted edge-labeled digraphs (Munn trees). Scheiblich's approach has been generalized for the bifree locally inverse semigroup by Auinger. In this talk we generalize Munn's approach. The straight bound between inverse semigroups and groups is now set in terms of locally inverse semigroups and completely simple semigroups. However, there are substantial differences on the graphs that we need to consider for the locally inverse case when comparing with the Munn trees. The graphs we shall consider are no longer edge-labeled nor digraphs. Instead, are the vertices that have labels. But the more striking fact about these graphs is that the vertices, which shall be called blocks, have a complex structure: they are graphs themselves. In this talk we shall describe a model for the bifree locally inverse semigroup where the elements are represented as "block-graphs".

## 16:30
## On the Bell monoid

Fábio Martins Silva (FCUL & CEMAT-Ciências)

Abstract:
The Plactic monoid is undoubtedly a very important algebraic structure, mainly because of its connections with a wide variety of topics in Mathematics, such as the theory of Schur functions, Kostka-Foulkes polynomials, Yang-Baxter equations and more recently Kashiwara's theory of crystal bases. The Plactic monoid has also motivated the study of other combinatorial monoids, like the Sylvester, the hypoplactic, the Chinese, the Baxter and the Bell monoids. In this presentation we will be interested in the last one. The Bell monoid was originally presented via an insertion algorithm on words, which then gives rise to an equivalence by identifying words leading to the same tableau. In the same way we present a new insertion algorithm and a new congruence coinciding and that generate the Bell monoid. Motivated by recent developments regarding conjugacy in Sylvester monoids, we will present several results both in the Bell monoid and in its restriction to permutations. Formulas to count the number of their elements satisfying some conditions will also be presented.

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