



# Università degli Studi di Palermo

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Dipartimento di Matematica e Informatica

*Words and Automata Research Group*

## SEMINAR ANNOUNCEMENT

### Title: **Suffixes, Conjugates and Lyndon Words**

Sabrina Mantaci, Università di Palermo

Thursday 17th October 2013, 3 p.m.

Room 7

Via Archirafi 34, 90123 Palermo

#### **Abstract:**

We are interested in the study of the combinatorial aspects connecting three important constructions in the field of string algorithms: the suffix array, the Burrows-Wheeler transform (BWT) and the extended Burrows-Wheeler transform (EBWT). Such constructions involve the notions of suffixes and conjugates of words and are based on two different order relations, denoted by  $<_{lex}$  and  $<_{\omega}$ , that, even if strictly connected, are quite different from the computational point of view. In this study an important role is played by Lyndon words. In particular, we improve the upper bound on the number of symbol comparisons needed to establish the  $<_{\omega}$  order between two primitive words by using a preliminary knowledge of the  $<_{lex}$  order of the corresponding Lyndon conjugates. Moreover, we propose an algorithm that efficiently sorts, according to the  $<_{\omega}$  order, the list of conjugates of a multiset of Lyndon words. Finally, we show that the Lyndon factorization of a word helps the construction of its suffix array, allowing a reduction of the number of symbol comparisons needed to lexicographically sort the suffixes of the word.

***All interested people, in particular students, are invited to participate.***