

“Symbolic Computations and Post-Quantum Cryptography” Online Seminar

Markus Lohrey

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“Algorithmic problems on compressed words.”

Oct 13, 12:00pm (New York Time).

Abstract:

In the talk, I will give a survey on the complexity of algorithmic problems on compressed words. A convenient compressed representation for words are straight-line programs (SLPs). An SLP is a context-free grammar G that generates a single word $\text{eval}(G)$. The length of this word can be exponential in the size of G . Thus SLPs can lead to an exponential compression ratio.

The complexity of simple decision problems (various pattern matching problems, membership in rational and context-free languages) for SLP-compressed strings will be studied. Some of these problems have efficient (polynomial time) algorithms, whereas others turn out to be computationally hard (e.g. PSPACE-complete). If time permits, I will briefly discuss some recent applications in combinatorial group theory and computational topology.

Next presentation: **Oct 27, 2011.** Title: *TBA*

Ludovic Perret (Laboratoire d'Informatique de Paris 6)