DENIS SERBIN, Stevens Institute of Technology
Compression techniques in infinite words

It's known (Plandowski's algorithm) that one can decide if the outputs of two straight-line programs ρ_1 and ρ_2 over a finite alphabet are equal in polynomial time with respect to the total size of the programs $|\rho_1| + |\rho_2|$. Our goal was to generalize Plandowski's algorithm to $\mathbb{Z}[t]$-completion of a free group F (so-called Lyndon's free group $F^{\mathbb{Z}[t]}$). In order to do this we introduced the notion of *generalized straight-line program* (GSLP for short) whose output is a reduced infinite word representing an element of $F^{\mathbb{Z}[t]}$. We adapted Plandowski's algorithm to the case of GSLP's and obtained the same complexity bounds as in the case of standard straight-line programs.

This is joint work with Alexander Ushakov.