1088-20-253   **Olga Kharlampovich*** (`okharlampovich@gmail.com`). *Using automata to solve algorithmic problems in relatively hyperbolic groups.*

One can associate to any subgroup of a free group a so-called Stallings automaton, i.e. a finite oriented labeled graph, that accepts only elements of H. Given generators of a finitely generated subgroup H of a free group F we can compute its basis and solve the membership problem using Stallings automaton. There is an algorithm to find the intersection of conjugates of two finitely generated subgroups of F using the product of their automata.

   We will describe how to construct similar automata for finitely generated relatively quasi-convex subgroups of relatively hyperbolic groups and how to solve different algorithmic problems for them. These are joint results with A. Myasnikov. (Received February 11, 2013)