Multifraction reduction in Artin-Tits groups

Patrick Dehornoy
Université de Caen, France
patrick.dehornoy@unicaen.fr

A classical result of Ore says that, if M is a cancellative monoid and any two elements of M admit a least common multiple, that every element of the enveloping group U(M) of M can be represented by a unique irreducible fraction on M. We extend this result by showing that, when common multiples need not exist but a certain "3-Ore condition" is satisfied, every elements of U(G) can be represented by a unique irreducible iterated fraction, leading to a solution of the Word Problem reminiscent of the Dehn algorithm for hyperbolic groups. This applies in particular to Artin-Tits groups of FC-type and, conjecturally, to all Artin-Tits groups.