

1129-20-296

Pascal Weil*, pascal.weil@labri.fr. *A graph-based method to randomly generate subgroups of free groups.*

The study of random algebraic objects sheds a different light on these objects, which complements the algebraic and the algorithmic points of view. When it comes to finitely generated subgroups of free groups, we have a remarkable graphical representation called the Stallings graph: the Stallings graph of a subgroup H is a finite labeled graph uniquely associated with H , efficiently computed from a set of generators of H (say, given as reduced words), and from which one can efficiently compute many invariants of H .

I will discuss enumerating and randomly generating finitely generated subgroups of free groups, for the distribution given by Stallings graphs: for each positive integer n , one considers the finite number of subgroups whose Stallings graph has n vertices, and one considers the uniform distribution on that set. This requires understanding the combinatorial structure of Stallings graphs, which are interesting objects per se. I will also exhibit natural properties of subgroups which are ‘generic’ for this distribution.

This is joint work with F. Bassino (U. Paris-Nord) and C. Nicaud (U. Paris-Est) (Received March 18, 2017)