
CHRISTOPHE REUTENAUER, Université du Québec à Montréal

Constructing bases of finite index subgroups of free groups using Sturmian sequences

Joint work with Jean Berstel, Clelia De Felice, Dominique Perrin, Giuseppina Rindone. The Schützenberger theory of bifix codes is extended to subsets of F , the set of factors of a Sturmian (or epiSturmian) sequence. It is shown that such a code, if maximal, is the basis of a subgroup of the free group, of index equal to the degree d of the code; d is the number of partial decodings of long words. This result extends considerably the classical fact (Morse-Hedlund) that the number of factors of length d of any Sturmian sequence is $d + 1$.