

# On Rauzy fractals generated by some automorphisms

Hiromi EI (Hirosaki University)

G. Rauzy found a fractal, so called a Rauzy fractal, as a realization of the substitution dynamical system generated by the substitution  $\sigma$  of rank 3 given by  $\sigma(1) = 12, \sigma(2) = 13, \sigma(3) = 1$ . This substitution is Pisot, irreducible, unimodular and invertible. Invertibility of a substitution gives good properties on Rauzy fractal. For example, a primitive, unimodular substitution of rank 2 is invertible if and only if a Rauzy fractal is an interval. In this talk, I introduce some results related to a Rauzy fractal and a dynamical system on it in the case of invertible substitution. And to extend these results for an automorphisms of the free group of rank 2 which is not a substitution, we consider the automorphis  $\sigma$  of the free group given by  $\sigma(1) = 2, \sigma(2) = 2, 1^{-1}22$ . This automorphism has a fixed point, so we can define a Rauzy fractal by the way of Rauzy. We will show that the Rauzy fractal for the automorphis is interval.