Growth rates of cocompact hyperbolic Coxeter groups and 2-Salem numbers

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Abstract. The group generated by reflections with respect to facets of a Coxeter polytope in n-dimensional hyperbolic space $\mathbb{H}^n$ is called a hyperboric Coxeter group. By the results of Cannon, Wagreich and Parry, it is known that the growth rate of a cocompact Coxeter group in $\mathbb{H}^2$ and $\mathbb{H}^3$ is a Salem number. On the other hand, Kerada defined a j-Salem number, which is a generalization of a Salem number. In this talk, I will present that we realize infinitely many 2-Salem numbers as the growth rates of cocompact Coxeter groups in $\mathbb{H}^4$. Our Coxeter polytopes are constructed by successive gluing of Coxeter polytopes which we call Coxeter dominoes.