INVARIANTS OF HYPERBOLIC 3-ORBIFOLDS ARISING FROM DISCRETENESS CONDITIONS

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One of the most useful necessary condition for a two-generated subgroups of $\mathrm{PSL}(2,\mathbb{C})$ to be discrete was obtained by Jørgensen in [1]. For $f, g \in \mathrm{PSL}(2,\mathbb{C})$ let us denote

$$\mathcal{J}(f,g) = |\mathrm{tr}^2(f) - 4| + |\mathrm{tr}[f,g] - 2.$$

Let $G < \mathrm{PSL}(2,\mathbb{C})$ be a 2-generated non-elementary group. The value

$$\mathcal{J}(G) = \inf_{\langle f,g\rangle = G} \mathcal{J}(f,g),$$

is said to be a *Jørgensen number* of G. The following was shown in [1]: if non-elementary group G is discrete then $\mathcal{J}(G) \geq 1$.

It was shown in [2] that the figure-eight knot complement is the unique hyperbolic 3-manifold whose fundamental group has Jørgensen number equals to one. Also, Jørgensen numbers for some 2-bridge knot groups were calculated.

In the talk we will discuss Jørgensen numbers for some hyperbolic 3-orbifolds. Moreover, Gehring – Martin – Tan and Tan numbers introduced in [3] and [4] will be calculated or estimated for some hyperbolic 3-orbifolds. The talk is based on the joint work with Alexander Masley [5].

References

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[5] A. Vesnin, A. Masley, On Jørgensen numbers and their analogues for groups of figure-eight knot orbifolds. *Siberian Math. J.* **55(5)** (2014) (in press).

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The research is supported by the RFBR grant number 12-01-??.