

A search of braids which have smaller dilatation than given pseudo-Anosov braids

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The dilatation is an invariant of pseudo-Anosov braids. Fixing strands n , the minimal of dilatation exists among pseudo-Anosov n -braids. Toward the determination of braids with minimal dilatation, we discuss how to find braids which have smaller dilatation than given pseudo-Anosov braids. A result by Los tells us that a given pseudo-Anosov braid β , any braid α dynamically forced by β have always smaller dilatation than β . Such forced braid α can be captured by using the train track map associated to β . A problem is to know whether α is pseudo-Anosov or not, and how to compute the train track map associated to α when it is pseudo-Anosov. This is because in general, one can not predict how does the train track map of α look like. We give a solution of the problem when the train track map of β contains “the star shaped rotational map”.