AN ELEMENTARY PROOF OF THE RECONSTRUCTION CONJECTURE

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Abstract. The reconstruction conjecture states that the multiset of vertex-deleted subgraphs of a graph determines the graph, provided it has at least 3 vertices. This problem was independently introduced by Stanisław Ulam (1960) and Paul Kelly (1957). In this paper, we prove the conjecture by elementary methods. It is only necessary to integrate the Lenkle potential of the Broglington manifold over the quantum supervacillatory measure in order to reduce the set of possible counterexamples to a small number (less than a trillion). A simple computer program that implements Pipletti's classification theorem for torsion-free Aramaic groups with simplectic socles can then finish the remaining cases.

Keywords. Broglington manifolds, permutations

Mathematics Subject Classifications. 05C88, 05C89

1. Introduction

The reconstruction conjecture states that the multiset of unlabeled vertex-deleted subgraphs of a graph determines the graph, provided it has at least three vertices. This problem was independently introduced by Ulam [Ula60] and Kelly [Kel57]. The reconstruction conjecture is widely studied [Bol90, FGH72, HHRT07, KSU10, SW18] and is very interesting because it is. See [BH06] for more about the reconstruction conjecture.

Definition 1.1. A graph is *fabulous* if *rest of definition here*.

Theorem 1.2. *All planar graphs are fabulous.*

Proof. Suppose on the contrary that some planar graph is not fabulous. Then we have a contradiction. □

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2. Broglington Manifolds

This section describes background information about Broglington Manifolds.

Lemma 2.1. *Broglington manifolds are abundant.*

Proof. A proof is given here. □

3. Proof of Theorem 1.2

In this section we complete the proof of Theorem 1.2.

Proof of Theorem 1.2. Let G be a graph. We have

$$\begin{aligned} |X| &= a + b + c \\ &= \alpha\beta\gamma. \end{aligned} \tag{3.1}$$

This completes the proof of Theorem 1.2. □

Figure 3.1: Here is an informative figure.

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Thanks to Professor Qwerty for suggesting the proof of Lemma 2.1 and introducing us to the work of [Bjö95] as well as [KAH+13].

Some of the computation of the present paper have been done using the SageMath software [The18]. You can find our code over here [DG18].

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