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CONTINUUM NONISOMORPHIC RATIONAL GROUPS

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Abstract. We construct a set of power of continuum nonisomorphic connected, rational, second metrizable Abelian topological groups. We also construct a nonmetrizable, connected, rational topological Abelian group.

1. Introduction

The classes of regular and rational curves are important in the theory of curves (see [5, §51]). There are two well-known examples of regular in the sense of the theory of curves connected to topological groups, namely, the circle and the real line. We will construct in this note continuum nonisomorphic rational, connected, second metrizable, Abelian topological groups.

2. Notation and Notions

All topological spaces are assumed to be completely regular. If Y is a subset of a topological space $(X,\mathcal{U})$, then $\mathcal{U}|Y$ stands for the induced topology on Y and $cl_{(X,\mathcal{U})}(Y)$ for the closure of Y. Neighborhoods of points of topological spaces are assumed to be open. A *clopen* subset of a topological space is a subset which is open and closed. Recall that a topological space X is called *locally connected* if for every neighborhood V_x of a point x there exists a connected neighborhood U_x of x such that $x \in U_x \subset V_x$. A topological space is called *rational* if it has a base consisting of open sets with countable or finite boundaries ([5, §51]). A topological space is called *regular* if it has a base consisting of open sets

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