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ON FIXED POINTS OF PERIODIC SELF-HOMEOMORPHISMS OF COMPACT TOPOLOGICAL SURFACES

E. BUJALANCE AND G. GROMADZKI

Abstract. The two main reasons for this survey are to outline a certain research method, based on hyperbolic geometry, concerning a study of finite actions on compact topological surfaces through their self-homeomorphisms, and to give a survey on fixed points of periodic self-homeomorphisms of such surfaces. The results presented have a common feature that can be obtained by the Nielsen-Riemann-Macbeath approach, which allows us to see such homeomorphisms as conformal maps of compact topological surfaces with some conformal structures imposed, and then study it combinatorially. We shall also give samples of proofs to illustrate the method in question.

1. Introduction

In this survey we shall get a general audience with an interest in topology acquainted with a certain approach based on hyperbolic geometry, and concerning studies of finite actions on compact topological surfaces. We shall also give some illustrative examples of results concerning fixed points of periodic self-homeomorphisms of compact topological surfaces and, more generally, finite actions through self-homeomorphisms which can be proved in a particularly simple way.

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