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Riemann surfaces and restrictively-marked hypermaps

Antonio Breda d'Azevedo

Abstract

If S is a compact Riemann surface of genus $g > 1$ then S has at most $84(g-1)$ (orientation preserving) automorphisms (Hurwitz). On the other hand, if G is a group of automorphisms of S and $|G| > 24(g-1)$ then G is the automorphism group of a regular oriented map (of genus g) and if $|G| > 12(g-1)$ then G is the automorphism group of a regular oriented hypermap of genus g (Singerman). We generalise these results and prove that if $|G| > g-1$ then G is the automorphism group of a regular restrictively-marked hypermap of genus g . As a special case we also show that a marked finite transitive permutation group (Singerman) is a restrictively-marked hypermap with the same genus.

Keywords: Groups, Riemann surface, hypermaps, maps, restrictively-marked, restrictively regular.

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Riemannove ploskve in omejeno-označeni hiperzempljevidi

Povzetek

Če je S kompaktna Riemannova ploskev rodu $g > 1$, potem ima S največ $84(g - 1)$ takih avtomorfizmov, ki ohranjajo orientacijo (Hurwitz). Po drugi strani pa velja: če je G grupa avtomorfizmov S in je $|G| > 24(g - 1)$, potem je G grupa avtomorfizmov regularno orientiranega zemljevida (rodu g), in če je $|G| > 12(g - 1)$, potem je G grupa avtomorfizmov regularno orientiranega hiper-zemljevida rodu g (Singerman). Te rezultate posplošimo in pokažemo naslednje: če je $|G| > g - 1$, potem je grupa G grupa avtomorfizmov regularnega omejeno-označenega zemljevida rodu g . Pokažemo tudi, da je označena končna tranzitivna permutacijska grupa (Singerman) omejeno-označen hiper-zemljevid enakega rodu.

Ključne besede: Grupe, Riemannova ploskev, hiperzemljevid, zemljevid, omejeno-označen, omejeno regularen.