

Quasi-abelian group acting on pseudo-real Riemann surfaces

Saúl Quispe

Departamento de Matemática y Estadística
Universidad de La Frontera, Chile

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A closed Riemann surface of genus $g \geq 2$ is called **pseudo-real** if it has anticonformal automorphisms but no anticonformal involutions. These Riemann surfaces, together with real Riemann surfaces, form the real locus of the moduli space \mathcal{M}_g of closed Riemann surfaces of genus $g \geq 2$. On the other hand, pseudo-real Riemann surfaces are examples of Riemann surfaces which cannot be defined over their field of moduli [1].

In general, a finite group might not be realized as the group of conformal/anticonformal automorphisms, admitting anticonformal ones, of a pseudo-real Riemann surface, for instance, in [2], it was observed that a necessary condition for that to happen is for the group to have order a multiple of 4. In this talk, we consider conformal/anticonformal actions of the quasi-abelian group of order 2^n ,

$$QA_n = \langle x, y : x^{2^{n-1}} = y^2 = 1, yxy = x^{2^{n-2}+1} \rangle \quad (\text{for } n \geq 4)$$

on pseudo-real Riemann surfaces. We consider two cases either QA_n has anti-conformal elements or QA_n only contains conformal elements [3]. This is joint work with R. A. Hidalgo and Y. Marín-Montilla.

References

- [1] M. Artebani, S. Quispe and C. Reyes. Automorphism groups of pseudoreal Riemann surfaces. *Journal of Pure and Applied Algebra* 221 (2017), 2383 – 2407
- [2] E. Bujalance, M. D. E. Conder and A. F. Costa. Pseudo-real Riemann surfaces and chiral regular maps, *Trans. Am. Math. Soc.* 362 (7) (2010), 3365 – 3376.
- [3] R. A. Hidalgo, Y. Marín Montilla and S. Quispe. Quasi-abelian group as automorphism group of Riemann surfaces, Preprint 2023.