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Compact Riemann Surfaces with Actions of $D_q \times \mathbb{Z}_p$

The study of group actions on Riemann surfaces is a problem of great interest that has been approached by researchers from various perspectives. Given the generality and complexity of the problem, it is necessary to impose certain specific conditions. Within this context, two problems stand out. The first one consists in, determining all compact Riemann surfaces on which a given finite group acts as an automorphism group. The second problem focuses on identifying which groups act on a given compact Riemann surface.

In this talk, we will be introduced to the world of compact Riemann surfaces. We will begin with a brief exposition of what a compact Riemann surface is and what it means for a finite group to act on it [1]. We will focus exclusively on the first problem. To approach it, the first step is to fix a finite group, so it is natural that the structure of the group will bring some additional conditions to the problem. As a second step, it will be necessary to establish other conditions, such as the genus of the surface. In particular, we will examine some results related to triangular compact Riemann surfaces with a group of automorphisms isomorphic to $D_q \times \mathbb{Z}_p$, where p and q are distinct primes with $p, q \geq 3$. This work is part of my doctoral thesis.

Work done together with: Sebastian Reyes-Carocca (Universidad de Chile)

References

[1] R. Miranda, *Algebraic curves and Riemann Surfaces.* Graduate Studies in Mathematics, vol5, American Math. Society, 1995.

[2] D. Singerman, *Finitely Maximal Fuchsian Gruops.* J. London Math. Soc. (2) 6, (1972), 29-38.