

March 12th 2008

Dear Editor of the Rose-Hulman Undergraduate Mathematics Journal:

I am writing this letter in support of Robert Benims paper which he submitted for consideration for publication in the Rose-Hulman Undergraduate Mathematics Journal. The paper is a condensed version of Roberts honors thesis which he wrote during the senior year of his undergraduate degree at the University of Portland in the 2006-2007 academic year. During that academic year, I acted as Roberts thesis advisor.

The focus of the paper is a study of automorphism groups of compact Riemann surfaces, and more specifically quasilatonic surfaces, through the use of computational group theory. The main result of the paper is a set of necessary and sufficient conditions for an Abelian group to act on a quasilatonic surface. Necessary and sufficient conditions for general Abelian group actions have already been stated by Thomas Breuer in his LMS Lecture Note Series book "Characters and Automorphism Groups of Compact Riemann Surfaces" (Theorem 9.1), but one of the five conditions stated (condition (0)) requires additional computation and depends upon the geometry of the action. Robert determined exactly when this condition would hold for the case where the surface is quasilatonic (which imposes restrictions on the geometry of the action).

To the best of my knowledge, Roberts work is original, and takes a small step toward a more general classification of quasilatonic solids which are of great interest to certain people in algebraic geometry and number theory. The general techniques he used drew from the knowledge he learned in his classes in finite group theory and number theory, plus all the additional background reading I required of him in algebraic topology and algebraic geometry, so certainly go above and beyond any typical homework assignment. I think it is fairly well written for someone so early in their career. My only one concern is that he was not sure how much could be assumed of the reader, so rather than including all the work required to define a compact Riemann surface, this definition is assumed (this was my recommendation due to my own inexperience in undergraduate journals – I guessed that since it would have required a number of additional pages to define this concept properly, it would probably be acceptable to omit it).

As stated above, Robert worked on the results of his paper during his senior year at the University of Portland in the 2006-2007 academic year. All results were produced during

this time and the final draft of his honors thesis was finished in April 2007. I would like to note that the paper itself is a condensed and cleaned up version of his honors thesis and was completed after he graduated (though I stress that all research he pursued and the results he obtained were all performed while he was an undergraduate).

My details are as follows:

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Please feel free to contact me if you have any further questions.

Your Sincerely,

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