

1145-53-1992

Jeffrey S Meyer* (jeffrey.meyer@csusb.edu), Jack Brown Hall, Room 370, 5500 University Parkway, San Bernardino, CA 92407, and **Sara Lapan** and **Benjamin Linowitz**. *Systole Growth Up Congruence Covers*.

The systole of a closed hyperbolic manifold is the minimal length of a nontrivial closed geodesic. The systole of such a manifold says something deep about how symmetric, and conversely how pinched, the manifold is. Question: How does the systole grow up a tower of covers? For an arithmetic hyperbolic manifold and its covers, the systole can be analyzed using number theoretic techniques. In this talk, I will outline the history of the problem, the relevant connections between hyperbolic geometry and number theory, and then discuss recent joint work with Benjamin Linowitz and Sara Lapan in which we show that for all arithmetic hyperbolic manifolds, the systole growth up a p -congruence tower is at least logarithmic in volume. This result adds to the literature which suggests that congruence covers are particularly symmetric. In particular, heuristically, this result can be understood to be dual to the result that the Cheeger constant up a p -congruence tower is uniformly bounded from below. (Received September 24, 2018)