

1056-57-1875

Rena MH Levitt* (rena.levitt@pomona.edu), Department of Mathematics, 610 North College Avenue, Claremont, CA 91711. *The Structure of Combinatorial Geodesics in $CAT(0)$ Simplicial 3-Complexes.*

In a simplicial complex, the combinatorial metric on the 0-skeleton is defined by taking the distance between vertices v and w to be the minimum length of edge paths in the between them. Paths of minimal length are combinatorial geodesics. In this talk, I will discuss the structure of combinatorial geodesics in $CAT(0)$, simplicial 3-complexes and use this structure to give a metric proof of the following theorem; groups acting geometrically on $CAT(0)$, simplicial 3-complexes are biautomatic, a condition that gives a positive solution to both the word problem and the conjugacy problem for these groups. (Received September 22, 2009)