TRINITY UNIVERSITY

DEPARTMENT OF MATHEMATICS

COLLOQUIUM SERIES
FALL 2009
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Whitehead's Algorithm and Geometric Generalizations

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Abstract: In 1936, J. H. C. Whitehead gave an algorithm to decide if there is an automorphism of the free group F_n that takes one list of words, $\{a_1, a_2, \ldots, a_m\}$ to another list $\{b_1, b_2, \ldots, b_m\}$. I will talk about this algorithm and a geometric generalization of Whitehead's question: Given a list of words in a free group, consider the patterns of lines that they make in a Cayley graph for the free group. What quasi-isometries of the free group respect this line pattern? This question has applications in Geometric Group Theory. This is joint work with Natasa Macura.

MMS 130
3:45–4:45pm
October 14th, 2009