

CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES
COLLOQUIUM

Friday, February 21
3:00 – 4:00 PM
Maria Sanford, Room 101

THE ANALYST'S TRAVELING SALESMAN
PROBLEM: A TOUR OF INFINITELY MANY
CITIES

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Abstract: The Traveling Salesman Problem says the following: *A salesman is given a (finite) list of cities that he must visit before returning home. Find the most efficient route for the salesman to travel.* While the most efficient route may be difficult to find, such route always exists. Suppose instead that the list contains infinitely many cities. The new problem becomes: *Determine whether or not there exists a route which allows the salesman to visit every city and return home in finite time.*

This new problem, known as the Analyst's Traveling Salesman Problem, was introduced by Peter Jones. Jones' viewed the list of cities as a set in 2-dimensional Euclidean space. In 1990 he provided necessary and sufficient conditions for the set to be contained in the curve of finite length, or analogously, conditions under which the salesman can travel to all the cities in finite time. We will begin with an introduction to some properties of sets in Euclidean space. We will then explore the techniques used to answer the Analyst's Traveling Salesman Problem. Finally, we will discuss some related recent research.

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