

Geometry Seminar
Tuesday, Apr 27, 2010
Room 201 WWH at 6:00 P.M.

How far can you reach?

Ileana Streinu
Smith College

Robot Arm Reachability, the problem of computing the extremal configurations of a 3D revolute-jointed manipulator, is a long standing open problem in robotics. Characterizing these extremal configurations has remained elusive for over 30 years. In spite of the practical importance of the problem, until recently only numerical optimization heuristics, with no guarantee of finding the global extrema, were available.

In this talk I will present: (a) a surprisingly simple, combinatorial characterization of extremal reaches, and (b) an optimal, linear time algorithm for orthogonal polygonal chains.

Joint work with Ciprian Borcea.

For more information please visit the seminar website at:

http://www.math.nyu.edu/seminars/geometry_seminar.html.