Meeting: 1007, Santa Barbara, California, SS 10A, Special Session on Complexity of Computation and Algorithms

1007-68-36 **James M. Calvin*** (calvin@njit.edu), Department of Computer Science, New Jersey Institute of Technology, University Heights, Newark, NJ 07102-1982. *Average-Case Complexity Bounds for Continuous Global Optimization.*

This talk is concerned with how hard it can be on average to approximate the minimum of a function that is an element of a class $F \subset C^r\left([0,1]^d\right)$ using sequentially selected function (and possibly derivative) evaluations. We assume that F is convex and symmetric. It is well known that with this assumption adaptive algorithms are essentially no more powerful than nonadaptive methods in the worst case, and so an average-case analysis is more interesting. We will describe a lower bound on the convergence rate that any algorithm can have for a particular Gaussian probability. We will also describe an optimization algorithm that has a convergence rate approaching the lower bound. (Received December 23, 2004)