CCSU
DEPARTMENT OF MATHEMATICAL SCIENCES

COLLOQUIUM

Friday, October 28
2:00 – 3:00 PM
Maria Sanford, Room 101

A SOLUTION OF INVERSE EIGENVALUE PROBLEM OF CERTAIN SINGULAR HERMITIAN MATRICES

KWASI BAAH GYAMFI
EASTERN CONNECTICUT STATE UNIVERSITY

Abstract: We present the solution to the Inverse Eigenvalue problem of certain singular Hermitian matrices by developing a method in the context of consistency conditions, for solving the direct Eigenvalue problem for singular matrices in which the eigenvectors are obtained first before their associated nonzero eigenvalues. Based on this method, we propose an algorithm to reconstruct such matrices from their eigenvalues. We finally initiate a differential geometry and, hence via Newton's method, a numerical analytic interpretation of the Inverse Eigenvalue problem using fibre bundle with structure group O(n).

MAX-PLUS ALGEBRA FOR POPULATION DYNAMICS OF GENETIC ALGORITHMS

JOSEPH ACKORA-PRAH
EASTERN CONNECTICUT STATE UNIVERSITY

Abstract: In this talk, we introduce Max-plus algebra, an analogue of the conventional algebra. The algebraic structure is a semi-ring whose elements are the usual real numbers along with $\varepsilon = -\infty$ and $e = 0$. We consider the max-plus algebra for the population process of genetic algorithms. The aim is to propagate a population of candidate solutions such that an optimal or good enough solution is obtained in the evolutionary process.

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