COLLOQUIUM

DEPARTMENT OF MATHEMATICS AND STATISTICS
OAKLAND UNIVERSITY
ROCHESTER, MICHIGAN 48309

Saroja Kanchi
Kettering University

Number of Relativized Maximum Genus Embeddings

Abstract: Minimum genus $\gamma_{min}(G)$ of a graph G is defined to be the smallest integer k such that G has a 2-cell embedding into an orientable surface of genus k. Maximum genus $\gamma_M(G)$ of a graph G is defined to be the largest integer k such that G has a 2-cell embedding into an orientable surface of genus k. It is known that embedding a graph G into a surface of minimum genus $\gamma_{min}(G)$ is NP-hard, whereas embedding a graph G into a surface of maximum genus $\gamma_M(G)$ can be done in polynomial time. There has been considerable interest in determining the number of maximum genus embeddings of a graph G. In this talk, we will prove results relating to the number of relativized maximum genus embeddings. In fact, we will prove that with a particular relativization, the counting problem is #P-complete. The reduction will be based on maximal matching in bipartite graphs.

372 Science and Engineering Building
Tuesday, March 15, 2005
3:00–4:00 p.m.

(Refreshments at 2:30 p.m. in Room 368, Science and Engineering Building)

Dr. Kanchi, an Associate Professor of Computer Science at Kettering University, obtained a PhD in Computer Science from Texas A & M University and three Master's degrees, with majors in Applied Mathematics, Pure Mathematics, and Computer Science. Her research interests include graph theory, graph algorithms, and distributed algorithms.