Wednesday, October 25, 2006
Root Hall A011, ISU
12:00 p.m., noon

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FAULT-TOLERANT
RING NETWORKS
and
s-HAMILTONIAN LINE GRAPHS

Given a network with a fixed network topology, the network can be modeled as a graph $G = (V, E)$. An $s$ fault-tolerant embedding (s-FT) with the given property $P$ is a graph $G$ such that the removal of any set of at most $s$ vertices from $G$ will result in a graph still having the property $P$. A network $G$ is an $s$-FT ring network if $G$ is an $s$-FT embedding of the property of having a spanning cycle. An $s$-hamiltonian graph is also referred as an $s$-FT ring network. For an integer $k > 0$, a graph $G$ is $k$-triangular if every edge of $G$ lies in at least $k$ distinct 3-cycles of $G$. In 1987, Broersma and Veldman proposed an open problem: For a given positive integer $k$, determine the value $s$ for which the statement

$$
\text{Let } G \text{ be a } k\text{-triangular graph. Then } L(G), \text{ the line graph of } G, \text{ is } s\text{-hamiltonian if and only } L(G) \text{ is } (s+2)\text{-connected}
$$

is valid. In this talk, we will discuss problems related to fault-tolerant ring networks, and progress toward a solution to Broersma and Veldman’s open problem.

For more information write to jajcay@cayley.indstate.edu or visit http://marilyn.indstate.edu/jajcay/seminar.html