Department of Mathematical Sciences

Colloquium

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Steiner complexes (or: Why can you walk from Mexico to Canada, or swim from the Pacific to the Atlantic, but not both?)

The classic Steiner reliability problem is about ways to disconnect an electrical circuit between two terminals. If the two terminals are say, on the left and right edges of the diagram, then minimal ways to disconnect such a circuit correspond to a collection of edges that run from the top of the diagram to the bottom. So the minimal ways to connect run left-right, and the minimal ways to disconnect run up-down, much like the Mexico-Canada/Pacific-Atlantic problem.

This translates to graph theory immediately. With a little more effort, it extends to matroids, a nice generalization of graphs, and we get matroid Steiner complexes. I will spend most of the time reviewing the work that has been previously done on Steiner complexes, only ending with a new result that the discrete Laplacian eigenvalues of a matroid Steiner complex are integers.

Most of the talk will be comprehensible to those who understand basic undergraduate graph theory.

Friday, October 14, 2005 at 3 pm. in Bell Hall 143
The University of Texas at El Paso

Refreshments will be served in front of the colloquium room, 15 minutes before the start of the colloquium.

For further information, please contact Dr. Pavel Šolín, Bell Hall 220. Phone: (915) 747-6770, email: `solin@utep.edu`.