

Meeting: 1003, Atlanta, Georgia, SS 1A, AMS Special Session on Current Events

1003-05-1691 **László Lovász***, Microsoft, 1 Microsoft Way, Redmond, WA 98052. *Graph Minors and the proof of Wagner's Conjecture.*

A monumental project in graph theory was recently completed. The project, started by Robertson and Seymour, and later joined by Thomas, led to entirely new concepts and a new way of looking at graph theory.

The motivating problem was Kuratowski's characterization of planar graphs and a far-reaching generalization of this, conjectured by Wagner: If a class of graphs is minor-closed (i.e., it is closed under deleting and contracting edges), then it can be characterized by a finite number of excluded minors. The proof of this conjecture led to a very general theorem about the structure of large graphs: If a minor-closed class of graphs does not contain all graphs, then every graph in it is glued together in a tree-like fashion from graphs that can almost be embedded in a fixed surface.

We describe the precise formulation of the main results, and survey some of its applications to algorithmic and structural problems in graph theory. (Received October 07, 2004)