KATHIE CAMERON, Wilfrid Laurier University

Recent Progress in Colouring Perfect Graphs

Berge defined a graph to be perfect if for every induced subgraph, the minimum number of colours required in a vertex colouring equals the maximum number of vertices in a clique. In 2002, Chudnovsky, Robertson, Seymour and Thomas proved Berge's 40-year-old Strong Perfect Graph Conjecture: a graph is perfect if and only if it contains no odd holes or odd antiholes. A "proof from the book" of this result might be a combinatorial polytime algorithm, which for any graph, finds a clique and colouring the same size, or else finds an odd hole or an odd antihole (or some other easily recognizable combinatorial obstruction to being perfect). In view of precedents, such an algorithm might be simpler than the Chudnovsky–Seymour and Cornuejols–Liu–Vuskovich algorithms for recognizing perfect graphs since it could end up giving a clique and a colouring of the same size in a non-perfect graph. I will report on some recent progress on special classes of graphs in joint work with Jack Edmonds, Elaine Eschen, Chinh Hoang and R. Sritharan.