Edge Colouring Multigraphs

Penny Haxell, University of Waterloo

Vizng's classical theorem tells us that there are only two possible values for the edge chromatic number of a graph G, namely $\Delta(G)$ and $\Delta(G)+1$, where $\Delta(G)$ denotes the maximum degree of G. However, for multigraphs the situation is more complicated and much less well understood. We discuss some old open problems and some relatively recent partial results related to edge colouring. One of the principal tools is an important method due to Tashkinov, called the method of *Tashkinov trees*, which is a sophisticated generalization of the method of alternating paths.