

Title: How to extend an edge colouring?

Abstract: Vizing's theorem states that every graph G of maximum degree Δ has a proper edge colouring using at most $\Delta + 1$ colours. Suppose now some of the edges of G were pre-coloured, in other words G has a partial edge colouring, when is it possible to extend it to a proper edge colouring of the entire graph using at most $\Delta + 1$ colours? We will talk about some results which allow us to extend partial edge colourings under mild conditions and we will prove that any partial colouring whose distance between any two pre-coloured edges is sufficiently large can be extended to a proper edge colouring of G , proving a conjecture of Albertson and Moore with a slightly bigger distance requirement. This work is based on a joint paper with Ross Kang.