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Vertex Colouring of Plane Graphs with Restrictions Given by Faces

A *cyclic colouring* of a 2-connected plane graph (a planar embedding of a planar graph) was first introduced by Ore and Plummer and is a proper colouring where no two vertices on the same face receive the same colour. Czap and Jendrol' introduced the concept of *parity vertex k-colouring* on a plane graph (a proper colouring where a colour must appear 0 or an odd number of times on each face) as a strengthening of a proper colouring but a relaxation of the concept of cyclic colouring. We will discuss an extension of a will discuss a natural generalisation of a parity vertex k-colouring. This is joint work with Christopher van Bommel.