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A Map Colour Theorem for Oriented Colouring

A classical problem in graph colouring theory, dating back to Heawood, is to study the number of colours required to colour graphs embeddable on a surface of bounded Euler genus. In this talk we will present a nearly tight bound on the oriented chromatic number in terms of the Euler genus of the graph being coloured. In particular, we will show that there exists oriented graphs with Euler genus at most g that require $\Omega(\frac{g}{\log(g)})$ -colours in any oriented colouring, before proving that every oriented graph with Euler genus at most g has an oriented colouring using at most $O(g \log(g))$ -colours.