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Clique Cut Sets of Signed Graphs and Zero-Free Chromatic Equivalence

Introduced by Thomas Zaslavsky, the *Zero-Free Chromatic Polynomial* is a function of a signed graph and an even positive integer, λ , which evaluates to the number of proper colourings of the signed graph with a symmetric set of λ nonzero integers. If two signed graphs have the same zero-free chromatic polynomial then they are *zero-free chromatically equivalent*. In this presentation we will consider signed graphs containing a clique cut set, and introduce a method to simplify the computation of their zero-free chromatic polynomials. We will also give a method for determining zero-free chromatic equivalence of such signed graphs.