

GRAPH COLOURING INFORMATION ENCODED INTO MONOMIAL IDEALS

ADAM VAN TUYL

ABSTRACT. Given a finite simple graph G on n vertices, there are different ways one can associate to the graph a monomial ideal in the polynomial ring $R = k[x_1, \dots, x_n]$. We review a couple of these methods. We focus on cover ideals, and explain how the irreducible decompositions of powers of the cover ideal contain colouring information about the graph.