
Scheduling Problems and Generalized Graph Coloring

John Machacek^{*1}

¹Department of Mathematics [Lansing] – Michigan State University East Lansing, MI 48824 USA,
United States

Abstract

We define a new type of vertex coloring which generalizes vertex coloring in graphs, hypergraphs, and simplicial complexes. To this coloring there is an associated symmetric function in noncommuting variables for which we give a deletion-contraction formula. In the case of graphs our symmetric function in noncommuting variables agrees with the chromatic symmetric function in noncommuting variables of Gebhard and Sagan. Our vertex coloring is a special case of the scheduling problems defined by Breuer and Klivans. We show how the deletion-contraction law can be applied to scheduling problems.

^{*}Speaker