Facet Generation for the Edge Coloring Polyhedron using Cliques

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Abstract

We report that facet results on scheduling polyhedra can be extended to develop facet-inducing inequalities of the edge coloring polyhedron. The edge coloring problem is re-specified by using the line graph of the original graph. We characterize facet-inducing inequalities of the subpolyhedron that corresponds to each clique of the induced line graph. To do this, we exploit the relationship between one-machine scheduling polyhedron and the edge coloring polyhedron. We then show that the facet-inducing inequalities can be easily lifted. We also present the experimental results on the effectiveness of the inequalities.

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