

The k -edge connected subgraph problem I : Polytopes and critical extreme points

M. Didi Biha¹ and A.R. Mahjoub²

*1. Laboratoire d'Analyse non linéaire et Géométrie, Université d'Avignon, 339 Chemin des
Meinajaries, 84911, Avignon, France*

*2. LIMOS, CNRS UMR 6158, Université Blaise Pascal Clermont II, Complexe Scientifique des
Cézeaux, 63177 Aubière Cedex, France*

Keywords : Polytope, Cut, k -Edge connected graph, Critical extreme point

Abstract

In this paper we consider the linear relaxation of the k -edge connected subgraph polytope, $P(G, k)$, given by the trivial and the so-called cut inequalities. We introduce an ordering on the fractional extreme points of $P(G, k)$ and describe some structural properties of the minimal extreme points with respect to that ordering. Using this we give sufficient conditions for $P(G, k)$ to be integral.