Abstract

The aim of this thesis is to investigate the intrinsic algebraic properties of degree sequence of simple graphs. We introduce a monomial ideal namely *elimination ideal* obtained from a given degree-sequence of a simple graph. We use the *Havel-Hakimi* criterion [24] to introduce the *graphical degree stability* of a graph (see definition 3.1.6). As an application we obtain the regularities of *elimination ideals* for various classes of graphs. At the end, we introduce the *regularity-depth* (see def. 3.2.4) of a monomial ideal. We succeeded to obtain *regularity-depth* of elimination ideals of various classes of graphs.