Abstract

Dominating vertex elimination method (which is also known as DVE Method) is a combinatorial method, which is use in a systematic way to compute graphical degree stability corresponding to well known families of graphs which are finite, simple and connected. Author in [1], calculated graphical degree stabilities corresponding to some famous families of graphs and computed their respective elimination ideals. Moreover the combinatorial upper bounds of regularity of these elimination ideals is computed. Author in [8], use algebraic method which is Minimal Free Resolution method to give an idea to calculate Castelnuovo - Mumford Regularity. The combinatorial method is much easier as compared to algebraic method. I am motivated from [1] and [10], we further extended this study for join and corona product of complete and cyclic graphs. First, we compute the graphical degree stabilities of join and corona product of above graphs by using dominating vertex elimination method . And then computed a sharp combinatorial bound for the Castelnuovo-Mumford regularity of elimination ideals associated to join of complete graph and cyclic graph ($K_n \vee C_m$). Furthermore, we also computed sharp combinatorial bounds for regularity of elimination ideals associated to corona product of complete and cyclic graph ($K_n * C_m$).