Bounds for Vulnerability Measures of Graphs

Dr. Sanju Vaidya, Mercy College, NY

In the last forty years, Graph Theory has provided many powerful tools for modeling and analysis of communication networks. In this study, the vertices correspond to the processors of the networks and the edges correspond to the links among the processors. Various vulnerability measures of graphs are crucial in assessing the stability and reliability of the communication networks. The main research question is how to compute bounds for various vulnerability measures for graphs. In this presentation, we will compute bounds for vulnerability measures, Closeness and Generalized Closeness, for graphs and we will describe graphs which attain the bounds. Moreover, we will establish bounds involving Zagreb indices for triangle and quadrangle free graphs.

Key Words: Vulnerability Measures, Closeness, Generalized Closeness