



Sohail Zafar (UMT, Lahore)

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AS-SMS

Binomial edge ideals of k -deficient graphs

In this talk, we will study binomial edge ideals, some of its combinatorial and algebraic properties. The class of k -deficient graphs came into existence, when the sequentially Cohen-Macaulay property of binomial edge ideals was discussed. If we remove k edges (with one fixed vertex) from the complete graph, such a connected graph is called k -deficient graph. We will study primary decomposition, Krull dimension, depth, Hilbert series and Castelnuovo-Mumford regularity of binomial edge ideal of k -deficient graphs.

There is not so much work done so far in the direction of the minimal free resolution of binomial edge ideals. The ideal consists of binomials so the problem to find minimal free resolution looks hard. The minimal free resolution of the binomial edge ideal of simplest classes like complete graph, line graph, complete bipartite graph and cycle graph is known. We will discuss brand new idea of computing the minimal free resolution of k -deficient graphs by using the concept of initial ideals (by converting binomial edge ideal to monomial edge ideal).



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