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Edge ideals and some numerical invariants of graded resolutions

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Abstract

Let G be a finite simple graph and let S be a polynomial ring over a field. The edge ideal of G is a monomial ideal of S which is generated by the monomials corresponding to the edges of G. In this talk, I will discuss some problems regarding two of the important invariants, namely regularity and projective dimension, which arise from minimal free resolutions of homogeneous ideals. I will present recent results on the sizes of Betti tables of edge ideals (joint with Takayuki Hibi) and results on squarefree powers of edge ideals (joint with Jürgen Herzog, Takayuki Hibi, Sara Saeedi Madani).

Date : Wednesday, March 31, 2021
Time: 10.00 EST 18.00 TSİ
Details : `http://sntp.ca/ucgen/`