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The reconstruction conjecture for edge ideals

Given a simple graph G on n vertices, let the deck of G be the collection of unlabeled subgraphs of G obtained by removing one vertex from G. An invariant of a graph is called reconstructible if it has the same value for any two graphs with the same deck. Graph theorists have studied reconstruction of combinatorial invariant of G as an strategy to prove the isomorphism class of G is reconstructible. We prove that it is possible to reconstruct several algebraic properties of the edge ideal from the deck of G. These properties include Krull dimension, Hilbert function, and all graded Betti numbers $\beta_{i,j}$ where $j < n$.