

Discrete Mathematics & Combinatorics

Discrete Morse theory for hull resolutions

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Hull resolutions provide a way to construct a cellular resolutions for any monomial ideal. In general the resulting resolution is not minimal but it can be made smaller using discrete Morse theory. We study the problem of when a minimal resolution can be obtained from the hull resolution by only using discrete Morse theory. The main examples come from edge ideals. For the edge ideal of the complement of a triangle-free graph we give a complete characterization of when a minimal resolution can be obtained in this way.