

Applications to discrete Morse theory: The collapsibility of CAT(0) cubical complexes of dimension 2 and 3

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ABSTRACT.

We investigate, using discrete Morse theory, the collapsibility of finite cubical complexes of dimension 2 and 3. Our main result states that any finite cubical complex of dimension 3 or less endowed with the standard piecewise Euclidean metric that is non-positively curved, and that satisfies the property that every 2-cell is the face of at most two 3-cells in the complex, collapses to a point.

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