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Discrete Morse functions with no critical simplices

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The aim of this talk is to study the existence of simplicial complexes which admit discrete Morse functions with no critical simplices. This situation is only possible for non-compact complexes, so we shall focus our work on infinite graphs and non-compact surfaces without boundary, obtaining results that characterize those graphs and surfaces which admit such discrete Morse functions.

(This is a joint work with R. Ayala and L. M. Fernández.)