Applying discrete Morse theory
to complexes of graphs

John Shareshian

2015/11/05

In a 1995 paper, R. Forman described a discrete version of Morse theory for cell complexes. (Aspects of this theory are found in earlier papers of K. S. Brown and K. S. Brown - R. Geoghegan.) Shortly thereafter, in solo work and in joint work with E. Babson, A. Bjorner, S. Linusson and V. Welker, we used this theory to study complexes whose faces are indexed by graphs with certain properties. These complexes arose in V. Vassiliev's study of knot invariants.