

1083-55-59

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Collegeville, PA 19426. *Discrete Lusternik–Schnirelmann category*. Preliminary report.

The discrete version of Morse theory due to Robin Forman is a powerful tool utilized in the study of topology, combinatorics, and mathematics involving the overlap of these fields. Inspired by the success of discrete Morse theory, we develop a discrete version of the Lusternik–Schnirelmann category suitable for cell complexes. This invariant is based on collapsibility as opposed to contractibility. We will show where it agrees and differs from that of the smooth case. We discuss a theorem which relates our discrete version of the Lusternik–Schnirelmann category to Forman’s discrete Morse theory. (Received August 14, 2012)