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Waclaw Marzantowicz* (marzan@amu.edu.pl), Faculty of Mathematics and Computer Science, Adam Mickiewicz University, ul. Uniwersytetu Poznanskiego 4, 60-773 Poznan, Wlkp, Poland.

Topological estimates of the number of vertices of minimal triangulations.

Primary 55M; Secondary 55M30, 57Q15, 57R05 keywords: covering type, minimal triangulation, Lusternik-Schnirelmann category, cup-length The *covering type* of a space X is a numerical homotopy invariant that in some sense measures the homotopical size of X . It was first introduced by Karoubi and Weibel [?] as the minimal cardinality of a good cover of a space Y taken among all spaces Y that are homotopy equivalent to X . In this talk we present several estimates of the covering type in terms of other homotopy invariants of X , most notably the ranks of the homology groups of X , the multiplicative structure of the cohomology ring of X and the Lusternik-Schnirelmann category of X . In addition, we relate the covering type of a triangulable space to the number of vertices in its minimal triangulations. In this way we derive within a unified framework several estimates of vertex-minimal triangulations which are either new or extensions of results that have been previously obtained by ad hoc combinatorial arguments.

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