

**Gruber, Peter M.**

**Aspects of approximation of convex bodies.** (English) [Zbl 0791.52007](#)

Gruber, P. M. (ed.) et al., Handbook of convex geometry. Volume A. Amsterdam: North-Holland. 319-345 (1993).

Most of this useful survey article concerns approximation of convex bodies by polytopes. Approximation by convex polytopes with at most  $n$  vertices (analogously: with at most  $n$  facets) is considered. On the other hand, the cases of the approximating polytopes contained in a body and containing it are discussed. The following measures of distance of convex bodies are taken into account: Hausdorff metric, Eggleston metric, surface deviation, symmetric difference metric, Banach-Mazur distance, Schneider distance. Considering approximation by polytopes, the author deals mainly with upper bounds, on asymptotic estimates as  $n \rightarrow \infty$ , and on algorithmic and step-by-step approximation. Only one short part is devoted to approximation by particular convex bodies like smooth bodies, ellipsoids, parallelotopes and cylinders. The progress of the research about approximation of convex bodies during last 10 years may be evaluated by a comparison of this article with the author's survey article in the collection Convexity and its applications, Collect. Surv., 131-162 (1983; [Zbl 0519.52005](#)).

For the entire collection see [[Zbl 0777.52001](#)].

Reviewer: [M.Lassak \(Bydgoszcz\)](#)

**MSC:**

[52A27](#) Approximation by convex sets

Cited in **5** Reviews  
Cited in **64** Documents

**Keywords:**

[survey](#); [approximation](#); [convex bodies](#); [convex polytopes](#); [Hausdorff metric](#); [Banach-Mazur distance](#)