Approximation complexity of convex bodies

Consider the approximation of an \( n \)-dimensional convex body by a projection of a section of an \( N \)-dimensional simplex, and call the minimal \( N \) for which such approximation exists the approximation complexity of the body. The reason for such strange definition lies in computer science. A projection of a section of a simplex is the feasible set of a linear programming problem, and so it can be efficiently generated. We will discuss how large the approximation complexity of different classes of convex bodies can be.