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Northampton, MA 01063. *A brief introduction to GKM theory.*

GKM theory is the name often given to an algebraic-combinatorial way to compute torus-equivariant cohomology. Named after Goresky, Kottwitz, and MacPherson, GKM theory builds on earlier work of Atiyah and Bott, Chang and Skjelbred, and others, who study equivariant cohomology by restricting equivariant classes to the torus-fixed points. Goresky, Kottwitz, and MacPherson described conditions for a T -variety X under which the equivariant cohomology is in fact a subring of the equivariant cohomology of X^T . In this survey, we give a brief introduction to GKM theory, a sketch of how it has been used in the literature, and some questions and directions for future research. (Received January 25, 2022)