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Thomas Baird* (tbaird@mun.ca). *GKM-sheaves and equivariant cohomology.*

Let T be a compact torus. Goresky, Kottwitz and Macpherson showed that for a large and interesting class of T -equivariant projective varieties X , the equivariant cohomology ring $H_T^*(X)$ may be encoded in a graph, now called the GKM-graph, with vertices corresponding to the fixed points of X and edges labeled by the weights, $Hom(T, U(1))$.

In this lecture, we explain how the GKM construction can be generalized to any finite T -CW complex. This generalization gives rise to new mathematical objects: GKM-hypergraphs and GKM-sheaves. If time permits, we will show how these methods were used to resolve a conjecture concerning the moduli space of flat connections over a non-orientable surface. (Received January 18, 2011)