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 $H_T^*(X)$ is 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, $\text{Hom}(T,U(1))$.

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)