

GKM-sheaves and equivariant cohomology

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Let T be a compact torus. Goresky, Kottwitz and Macpherson showed that for a large and interesting class of T -manifolds M , the equivariant cohomology ring $H_T^*(M)$ can be encoded in a graph, now called a GKM-graph, with vertices corresponding to the fixed points M^T and edges labeled by characters of T .

In this lecture, we explain how the GKM construction can be generalized to any compact T -manifold. 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 connections over a non-orientable surface.