CATALIN ZARA, UMass Boston

Balanced Fiber Bundles and GKM Theory

Let T be a torus and B a compact T-manifold. Goresky, Kottwitz, and MacPherson showed that if B is (what was subsequently called) a GKM manifold, then there exists a simple combinatorial description of the equivariant cohomology ring $H_T^*(B)$ as a subring of $H_T^*(B^T)$. We discuss an analogue of this result for T-equivariant fiber bundles $\pi \colon M \to B$. We show that there is a combinatorial description of $H_T^*(M)$ as a subring of $H_T^*(\pi^{-1}(B^T))$. Using this result we obtain fiber bundle analogues of GKM theory for homogeneous spaces. This is joint work with Victor Guillemin (MIT) and Silvia Sabatini (EPFL).