GENERALISED EULER CHARACTERISTICS OF VARIETIES OF TORI IN LIE GROUPS

G.I. LEHRER

Abstract of Talk for Bielefeld, June 2004.

Let G be a complex Lie group with a real structure. The variety $\mathcal{T}$ of maximal tori of G then has real points and one may consider the topology of the space of real points of various real subvarieties of $\mathcal{T}$. We present results concerning the Euler characteristics of certain such varieties, weighted by a sign which is attached to each of their connected components. The results are adaptations to the real case of results concerning Fourier transforms of Steinberg functions of Lie algebras over finite fields. The Euler characteristics are realised as characteristic functions of certain complexes of sheaves, and the Brylinski-Kashiwara-Shapiro technology of Fourier transforms of conical complexes of sheaves is used in the proofs.