1176-53-124 **Matvei Libine*** (mlibine@indiana.edu). *Localization of integrals of equivariant forms for non-compact group actions.*

The Berline-Vergne integral localization formula for equivariantly closed forms is well-known and requires the acting Lie group to be compact. In this talk I will explain my extension of this result to (non-compact) real reductive Lie groups. This extension requires relaxing the notion of convergence of integrals and redefining integrals as distributions on the Lie algebra. It also requires finding the right balance (or duality) between the equivariant forms and the cycles of integration so that integrals make sense and a Berline-Vergne type localization formula holds. An application of this generalized localization formula includes a proof of the integral character formula for real reductive Lie groups originally due to Rossmann, Schmid, Vilonen. This talk is based on my paper "Integrals of Equivariant forms and a Gauss-Bonnet Theorem for Constructible Sheaves" published in Topology, also available from arXiv:math/0306152. (Received January 18, 2022)