



Department of Mathematics and Statistics

COLLOQUIUM

Tuesday, October 11th, 2015

4:00 – 5:00 pm, Adel Mathematics Bldg., Room 164
(refreshments at 3:45)

Dr. Michael Falk
NAU

Milnor fibers of arrangements and the residue double complex

Abstract: Let Q be a homogeneous polynomial in n variables. The set V of complex solutions to the equation $Q(x)=0$ is an algebraic variety with a singularity at the origin. The set F of complex solutions to the equation $Q(x)=1$ is a smooth $(2n-2)$ -dimensional manifold, called the Milnor fiber of Q . It is the typical fiber of the map defined by Q from the complement of V to $\mathbb{C}\setminus\{0\}$, which is a fiber bundle whose topology is an analytic invariant of the singularity of V at the origin.

If Q is a product of non-proportional linear polynomials, then V is a union of hyperplanes. In this case it was conjectured that the abelianization of the fundamental group of F is torsion-free, with rank determined by the combinatorial incidence data associated with the components of V . We'll sketch a new proof of the latter statement, based on a tool developed for a different purpose in previous joint work with V. Schechtman and A. Varchenko, called the residue double complex.

Algebra Combinatorics Geometry and Topology (ACGT) Seminar meets Tuesdays, 12:45 – 1:45 pm, AMB 164.
Steve Wilson continues speaking about Cayley and PX graphs.

Applied Math Seminar (AMS) meets Thursdays, 12:45 – 1:45 pm, AMB 164.
Terry Blows continues speaking about population modeling.

Friday Afternoon Undergraduate Mathematics Seminar (FAMUS) meets Fridays, 3pm.