USNA Math Department Colloquium

# *Global singularity theory*

Prof. Richard Rimanyi (University of North Carolina)

Date: Wednesday, 18 September 2013

Time: 3:45-4:45pm*

Location: Chauvenet 110

**Abstract:** Large-scale topological properties often force unusual local behavior (called singularities). That is, the topology of the spaces $A$ and $B$ may force every map from $A$ to $B$ to have certain singularities. For example, a map from the Klein bottle to 3-space must have double points. A map from the projective plane to the plane must have an odd number of cusp points. To a singularity one may associate a polynomial (its Thom polynomial) which measures how topology forces this particular singularity. In the lecture we will explore the theory of Thom polynomials and their applications in enumerative geometry. Along the way, we will meet a wide spectrum of mathematical concepts from geometric theorems of the ancient Greeks to the cohomology ring of moduli spaces. A large part of the lecture will be targeted at a general audience (not specialists).

*The talk will be preceded by tea and cookies starting at 3:30pm.