Global singularity theory

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 this lecture, we will explore the theory of Thom polynomials and their applications to enumerative geometry. Along the way, we will meet a wide spectrum of mathematical concepts from geometric theorems of the ancient Greeks to the theory of diagrams of linear maps (quivers).