Prof. Dr. Markus Banagl
A Spatial Approach to Poincaré Duality on Singular Spaces

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Trying to lift our understanding of Poincaré Duality on stratified singular spaces from the chain- or form-level to the space level leads to a new cohomology theory HI, which is generally not isomorphic to intersection cohomology IH. We will discuss various aspects, byproducts and applications of this new theory. Topics touched on will include a de Rham formulation, the cohomology of flat fiber bundles, smooth deformations of singular projective hypersurfaces, massless D-branes in type II string theory and mirror symmetry in the context of a Calabi-Yau conifold transition.

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