

*Abstract of my Talk in the Research Seminar led by Professor Bernd Ammann
at the Faculty of Mathematics of Regensburg on Tuesday, 8th of May 2018,
with the Title*

**A Spatial Approach to Poincaré Duality on Singular Spaces:
Intersection Space Cohomology**

Manifolds have a remarkable hidden symmetry: Poincaré Duality, which is visible in (co)homology. Particularly, the ranks of the (co)homology groups of complementary degree are equal. This property enables us to understand the topology of manifolds much better, for example by defining and investigating the signature. Singular spaces do not have that symmetry in general. To be able to use similar techniques as for manifolds, one has to replace ordinary (co)homology by an alternative. In this talk, we present an approach that was introduced by M. Banagl: Intersection space (co)homology. We discuss the spatial and the de Rham picture for spaces with isolated singularities and talk about the difficulties of generalizing the theory to pseudomanifolds with more complicated singularities.