

# Cohomology with non-smooth forms

Stanislav Dubrovskiy

$L_p$  (and  $L_{q,p}$ )-cohomology is a relatively recent (dating to the early 80's) integral invariant of smooth (more generally Lipschitz) manifolds with applications to manifolds with singularities or non-compact manifolds.

It is different from the classical cohomology in that it is a metric-sensitive, not just a topological invariant.

In this talk we introduce the basic notions, then consider local  $L_\infty$ -cohomology on  $\mathbb{R}^n$ , and present a new compact proof of Poincaré Lemma for it, time permitting. De Rham theorem follows. This is a joint work with Vladimir Gol'dshtein.