



YONSEI Math-CSE Colloquium

Cohomology theories on singular spaces: good, bad, and ugly aspects

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The word “cohomology” originates from topology and geometry, but in modern mathematics its definition has far reaching extensions in diverse disciplines of mathematics. This language appears now in numerous fields; from combinatorics, calculus to topology, geometry, number theory, homotopy theory, and further to algebraic geometry as well.

For instance, in terms of the cohomological languages, we have their avatars in e.g. Stokes theorem, reciprocity theorem (the sum of residues is zero) in complex geometry, Gauss’s quadratic reciprocity, or Weil’s conjectures on Hasse-Weil zeta functions.

In this colloquium, I will first discuss some brief historical sketches on cohomology theories. Then I will present some motivations to develop cohomology theories on singular spaces in algebraic geometry, as well as some recent attempts and results of mine in this direction.

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Sci Building #225

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