

A vanishing theorem of the cohomology for flasque sheaves

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Abstract

The goal of this seminary is to give the proof of the theorem that states that, for a flasque sheaf \mathcal{F} on a topological space X , we have $H^i(X, \mathcal{F}) = 0$ for all $i > 0$.

We will start with a brief recap of the fundamental notions, definitions and results in category theory and homological algebra that will be used later; then we will see how to define the *cohomology functors* $H^i(X, \cdot)$ as right derived functors of $\Gamma(X, \cdot)$, that give the *cohomology groups* $H^i(X, \mathcal{F})$. After that we will prove the theorem and we will conclude by giving some of its most useful consequences.

References

- [1] Robin Hartshorne, *Algebraic Geometry*, Graduate Texts in Mathematics 52, Springer-Verlag, New York-Heidelberg, 1977
- [2] Andreas Gathmann, *Algebraic Geometry*, Notes for a class taught at the University of Kaiserslautern 2002/2003, <https://www.mathematik.uni-kl.de/~gathmann/class/algeom-2002/algeom-2002.pdf>
- [3] Charles A. Weibel, *An introduction to Homological Algebra*, Cambridge University Press, United Kingdom, 1994