

SEMINÁRIO

LÓGICA MATEMÁTICA

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A new cohomology for algebraic varieties over non-archimedean fields

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Abstract:

The interplay between analytic geometry over non-archimedean fields and tropical geometry is a very active area with several applications in fields such as algebraic and arithmetic geometry. Recently, Hrushovski and Loeser introduced a model-theoretic account of the Berkovich's analytification of algebraic varieties: given a variety V over a non-archimedean field K , Hrushovski and Loeser associated to V the space \widehat{V} , the stable completion of V , and showed a very deep connection between V and the tropical semi-group Γ_{∞} where Γ is the value group of K : there is a deformation retraction from \widehat{V} to a definable subset of some finite power of Γ_{∞} . An analogous result was earlier proved by Berkovich for $V^{\wedge n}$ under strong algebraic restrictions on the variety V . In this talk we report on the ongoing work (with P. Kovácsics and J. Ye) where we develop a sheaf cohomology theory for the spaces \widehat{V} . When the field K is maximally complete of rank one, the spaces \widehat{V} and $|V^{\wedge n}|$ are naturally homeomorphic and we recover results proved by Berkovich for the cohomology groups.

