

A Functorial Excursion between Algebraic Geometry and Linear Logic (in person)

Wednesday, 1 December 2021 10:50 (50 minutes)

In this talk, I will use the functor of points approach to Algebraic Geometry to establish that every covariant presheaf X on the category of commutative rings – and in particular every scheme X – comes equipped “above it” with a symmetric monoidal closed category $\text{PshMod}X$ of presheaves of modules. This category $\text{PshMod}X$ defines moreover a model of intuitionistic linear logic, whose exponential modality is obtained by glueing together in an appropriate way the Sweedler dual construction on ring algebras. The purpose of this work is to explore the idea that linear logic is a logic of generalised vector bundles, in the same way as dependent type theory is understood today as a logic of spaces up to homotopy.

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