Please use this identifier to cite or link to this item: http://hdl.handle.net/123456789/1533

Title:	Affine Group Schemes
Authors:	Lakshmi, R.
Keywords:	Affine Varieties and the Zariski Topology Group Functors Hopf Algebras Separable Algebras
Issue Date:	Apr-2020
Publisher:	IISER Mohali
Abstract:	Algebraic geometry is the study of geometric entities through the language of algebra by codifying structures in terms of roots of equations. In this thesis I explore the geometry that corresponds with roots of families of polynomials that form a group under some operation. The relationship between the affine varieties and the polynomials can be extended to a more fundamental relationship between affine group schemes and Hopf algebras. In this thesis I first establish this relationship through the concept of representable functors, and then the reverse relationship via co-algebras. Then, I define comodules, and use this definition to arrive at important finiteness theorems of affine group schemes. Then, I use the concept of separability, and via group action of the Galois group, I prove that separable algebras correspond to finite groups on which the Galois group acts continuously. Lastly, I study matrix groups that correspond to affine group schemes and arrive at results about diagonalisable groups, tori and automorphism groups.
URI:	http://hdl.handle.net/123456789/1533
Appears in Collections:	MS-15

Files in This Item:

File	Size	Format	
MS15100.pdf	878.17 kB	Adobe PDF	View/Open

Show full item record