

NON-COMMUTATIVE IWASAWA THEORY OF ABELIAN VARIETIES

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Non-commutative Iwasawa theory has emerged as a powerful framework for understanding deep arithmetic properties over number fields contained in a p -adic Lie extension and their precise relationship to special values of complex L -functions. This talk aims to explore non-commutative Iwasawa theory over global function fields. We consider an abelian variety A defined over various base fields F , and discuss its arithmetic over the cyclotomic \mathbb{Z}_p -extension and more general p -adic Lie extensions. After reviewing some known results over number fields, we shift our focus to the case of global function fields. In this context, we investigate the arithmetic of A over different p -adic Lie extensions without assuming the finiteness of the Selmer group of A over the base field F , as well as its relation to the order of vanishing of the L -function of A/F at $s = 1$.