

Speaker: Andrew Snowden

Title: Integral structures on de Rham cohomology

Abstract: Associated to a smooth projective variety over the rational numbers are its algebraic de Rham cohomology groups, which are finite dimensional rational vector spaces. I will show how one can construct certain natural lattices in these vector spaces. The construction of these integral structures is analogous to Deligne's construction of the "canonical extension" in the theory of variation of Hodge structures, with p -adic Hodge theory taking the place of usual Hodge theory. I will briefly review the complex theory, explain the construction in the arithmetic setting and then give some examples and applications. This is joint work with Bhargav Bhatt.