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Research field: Arithmetic Geometry, Number theory

Key words: p-adic Hodge theory, p-adic cohomology, p-adic Galois representation

Present research:

I have been studying the p-adic Hodge theory, an analogue of the Hodge theory for algebraic varieties or analytic varieties over a p-adic field. The main topic of the theory is to understand topological and arithmetic objects such as p-adic étale cohomology, p-adic étale sheaves, and analytic and algebraic objects such as de Rham cohomology, differential forms. Recently I am working on an analogue of the non-abelian Hodge theory (Corelette-Simpson correspondence), which is called a p-adic Simpson correspondence, and the integral p-adic Hodge theory, which deals with various p-adic cohomologies with integral coefficients, in terms of q-connections. I am also interested in foundational research in p-adic Galois representations and in logarithmic algebraic geometry.

Notice for students:

Besides fundamental knowledge on groups, rings, and fields, it is desirable to learn class field theory (in particular, local class field theory) and some foundations on algebraic geometry (schemes, sheaves and their cohomology etc.).