

# ARITHMETIC OF ADJOINT $L$ -VALUES

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In the series of lectures, we discuss

- (1) Construction of one variable adjoint  $p$ -adic  $L$ -function in the elliptic modular case
- (2) Extension of the result to Hilbert modular case,
- (3) A proof of the one variable adjoint main conjecture,
- (4) Overview of the two variable  $L$ -functions and adjoint main conjecture.

The first lecture covers material in §5.2-3 of [1]. The second lecture extends the result to Hilbert modular cases via " $\mathbf{R} = \mathbb{T}$ "-theorem in [2]. Some topics related to base-change could be covered. In the third lecture, we prove the adjoint main conjecture for the weight variable. The last lecture is an overview of recent progress by other mathematicians and myself.

## REFERENCES

- [1] H. Hida. *Modular Forms and Galois Cohomology*, Cambridge Studies in Advanced Mathematics **69**, Cambridge University Press, Cambridge, England, 2000.
- [2] H. Hida. *Hilbert modular forms and Iwasawa theory*, Oxford Mathematical Monographs. The Clarendon Press, Oxford University Press, Oxford, 2006.