

Algebraicity and p -adic interpolation of critical Hecke L -values

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Euler's beautiful formula

$$\zeta(2n) = -\frac{(2\pi i)^{2n}}{2(2n)!} B_{2n}.$$

can be seen as the starting point of the investigation of special values of L -functions. In particular, Euler's result shows that all critical zeta values are rational up to multiplication with a particular period, here the period is a power of $(2\pi i)$. Conjecturally this is expected to hold for all critical L -values of motives. In this talk, I will explain a joint result with Guido Kings on the algebraicity of critical Hecke L -values up to explicit periods for totally imaginary fields. If time permits, I will discuss the construction of p -adic L -functions for such fields as an application.