Online Number Theory Seminar

06 November 2026. – 17:00-17:50 CET

Á. Tóth: An analogue of the Mellin transform for weakly holomorphic forms.

The (completed) L-function of a classical cups form of weight k can be expressed as an integral transform along a special geodesic cycle; the Mellin transform along the imaginary half-line in the upper half plane. By the converse theorem of Hecke, this L-function determines the original form. Moreover, f can be recovered from the finitely many special values $L(s)$ at the integers between 0 and $k-2$, a consequence of Eichler-Shimura theory most naturally established via Haberland's formula.

For weakly holomorphic modular forms that grow exponentially at infinity, these statements break down, and several alternative approaches have been proposed.

In this talk I will review the classical theory and some of its generalizations, with particular emphasis on recent joint work with Imamoglu and Martin.