A P-ADIC ANALOGUE OF A FORMULA BY GROSS AND ZAGIER

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In their 1984 paper "On singular moduli", Gross and Zagier proved an explicit factorisation formula for the norm of the difference between two CM-values of the classical j-function. In 2022, it was conjectured by Giampietro and Darmon that the CM-values of certain p-adic theta-functions on Shimura curves should obey similar factorisation patterns. In this talk, we explore the classical result about the j-function, discuss its proofs and outline how the study of infinitesimal deformations of p-adic Hilbert Eisenstein series was used to settle the conjectures about the theta-function. This p-adic analytic approach bears resemblance to some of the newly developed methods in modern RM-theory.