On μ-invariants and congruences with Eisenstein series
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For any irregular prime p, one has a Hida family of cuspidal eigenforms of level 1 whose residual Galois representations are all reducible. This family has already played a starring role in Wiles proof of Iwasawas main conjecture for totally real fields. In this talk, we instead focus on the Iwasawa theory of these modular forms in their own right. We will discuss new phenomena that occur in this residually reducible case including the fact that analytic μ-invariants are unbounded in this family and directly related to the p-adic zeta-function. This is a joint work with Joel Bellaiche.