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p-adic properties of traces of singular moduli

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Abstract

Zagier initiated the study of traces of singular moduli $\operatorname{Tr}(d)$ and their generalizations as coefficients of certain weakly holomorphic half integral weight modular forms. We discuss the *p*-adic properties of these traces and consequent congruences. In the case where *p* splits in $\mathbb{Q}(\sqrt{-d})$, we recover Edixhoven's observation that $\operatorname{Tr}(p^{2n}d) \equiv 0$ (mod p^n).