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A Jacquet–Langlands correspondence for p-adic families of modular

The simplest case of the Jacquet–Langlands correspondence associates to every cuspidal eigenform f of weight $k > 2$ on $\Gamma_0(p\ell)$, for p, ℓ distinct prime integers, which is new at ℓ an eigenform g of the same weight on the quaternion algebra B of discriminant $\ell\infty$, such that the Hecke eigenvalues of f and g for all Hecke operators T_n, where n is prime to ℓ, are the same.

We propose to use vanishing cycles for p-adic cohomology on the modular curves $X_0(p\ell)$ over $\mathbb{Z}_\ell$ to extend this correspondence to p-adic families of modular eigenforms for $\Gamma_0(p\ell)$ and B.