Calabi-Yau periods, Modularity and Arithmetic Geometry
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Using Mirror symmetry and Dworks p-adic deformation of the Gauss Manin connection we construct the Hasse Weil Zeta function $\zeta(X/\mathbb{Q},s)$ for hypergeometric families of Calabi-Yau threefolds X. We then explore the consequences of its modularity in special fibres over algebraic extensions of $\mathbb{Q}$ on enumerative geometry as well as the physics of string compactification on X.