Weierstrass points on modular curves and supersingular j-invariants

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Abstract. For primes p we investigate the correspondence between Weierstrass points on the modular curve $X_0(p)$ and the collection of supersingular j-invariants in characteristic p. We prove that the collection of Weierstrass points, when viewed modulo p, covers the supersingular locus in characteristic p exactly $g^2 - g$ times (here g is the genus of $X_0(p)$). This is joint work with K. Ono.