

COMPLETE 2-DESCENT: AN EXAMPLE

PREVIOUSLY...

Weil pairing + Kummer pairing + Hilbert's Thm 90

↳ Bilinear pairing $b: E(K)/_m E(K) \times E[m] \rightarrow K^x / (K^x)^m$

s.t. $e_m(K(P, \sigma), T) = \delta_K(b(P, T))(\sigma)$.

induces

$$\begin{array}{ccc} E(K)/_m E(K) & \hookrightarrow & \text{Hom}(E[m], K^x / (K^x)^m) \\ P \mapsto & & b(P, \cdot) \end{array}$$

s.t. $b(P, T) \in K(S, m) = \{ b \in K^x / (K^x)^m : \text{ord}_v(b) \equiv 0 \pmod{m} \}$

