

PART 2

The Tate Profile

Definition 4. Assume $E[m] \subseteq E(\mathbb{F}_q)$ and let (P_1, P_2) be a basis for $E[m]$. Then, the m -Tate profile is the map

$$t_{[m]} : E(\mathbb{F}_q) \rightarrow \mu_m^2 \quad Q \mapsto (t_2(P_1, Q), t_2(P_2, Q)).$$

For $Q \in E(\mathbb{F}_q)$, we say that $t_{[m]}(Q)$ is the m -profile of Q . When $t_{[m]}(Q) = (1, 1)$, we say the profile is *trivial*.



La Siesta (1982)

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If the Tate pairing t_m is bilinear, then the Tate profile $t_{[m]}$ is linear.



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