

ELLIPTIC CURVES OVER LOCAL FIELDS

• THE ACTION OF INERTIA

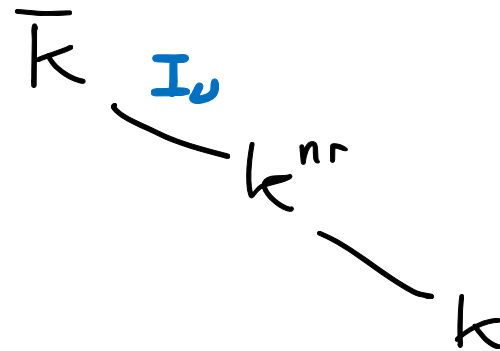
K local field, complete wrt v .

\bar{K} algebraic closure

K^{nr} maximal unramified ext'n of K in \bar{K}

$G_K = \text{Gal}(\bar{K}/K) = D(\mathcal{M}_{\bar{K}}/\mathcal{M}_K)$ decomposition group

$I_v = \text{Gal}(\bar{K}/K^{nr}) = I(\mathcal{M}_{\bar{K}}/\mathcal{M}_K)$ inertia subgrp.



$$1 \longrightarrow \text{Gal}(\bar{K}/K^{nr}) \longrightarrow \text{Gal}(\bar{K}/K) \longrightarrow \text{Gal}(K^{nr}/K) \longrightarrow 1$$

$$\quad \quad \quad \parallel \quad \quad \quad \parallel$$

$$\quad \quad \quad I_v \quad \quad \quad \text{Gal}(\bar{K}/K)$$

Def. $\Sigma \xrightarrow{D} G_K$ is unramified at v if I_v

