

$$\mathbb{Q} \subset \mathbb{Q}^G \xrightarrow{p} \mathbb{R}^{d_1} \times \mathbb{C}^{d_2}$$

$$\mathbb{U} \quad \mathbb{U} \quad \mathbb{U}$$

$$\mathbb{Z} \subset \mathbb{Z}^G \xrightarrow{\sim} \mathbb{Z}^{d_1 + d_2}$$

$$\text{abel } G \xrightarrow{\varrho} \mathbb{C}^\times$$

$${}^s\zeta_{\mathbb{Q}}^{-1} = \prod_p \left(1 - \frac{\varrho(\sigma_p)}{p^s} \right)$$

$${}^s\zeta_G = \prod_{\varrho} {}^s\zeta_{\mathbb{Q}}$$

$$D = \det(\omega_i^p)$$