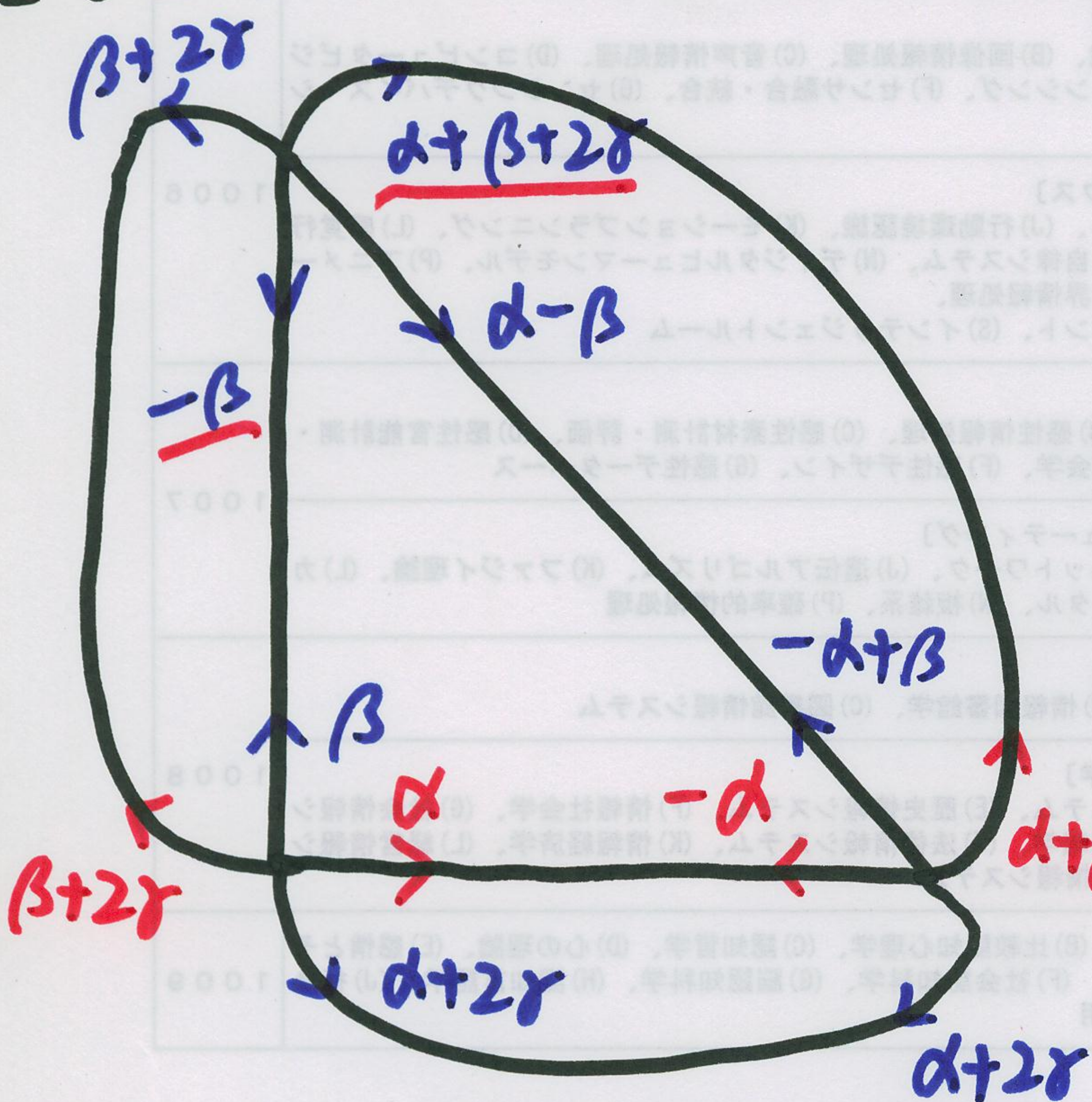# Quaternionic torus graph

$$T : 2n\text{-valent}$$

$$\alpha : E_p^T \longrightarrow (t_{\mathbb{Z}}^{n+1})^*$$

$$E_p^T = \{e_1^+, \cdots, e_n^+, e_1^-, \cdots, e_n^-\}$$
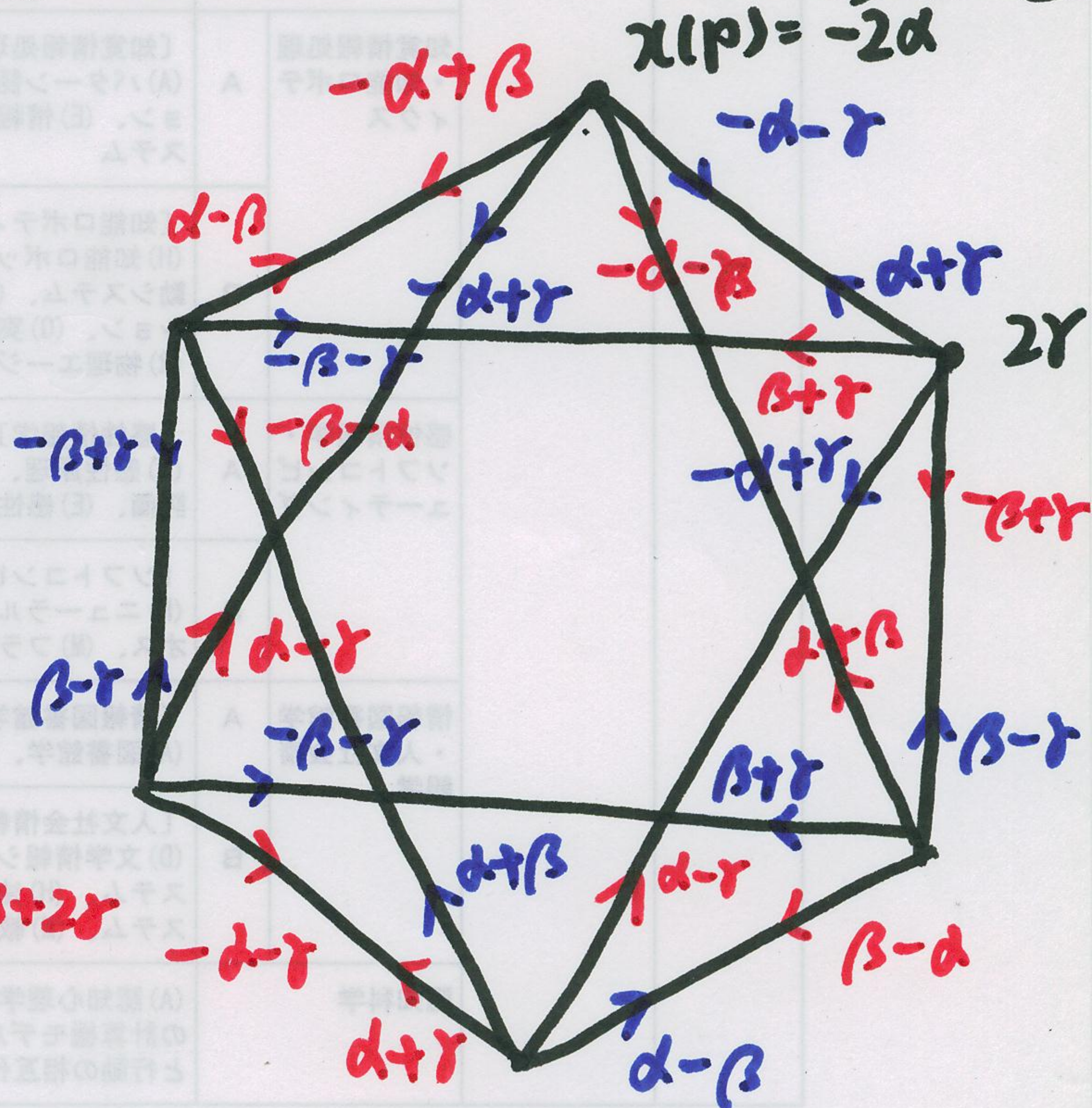
$$\alpha(e_i^+) + \alpha(e_i^-) = \chi(p) \quad \underline{\text{depend on } p}$$

$$\left(\text{e.g. GKM-graph by} \atop {\cdot \text{ quaternionic projective space} \atop \cdot \text{ complex quadric.}} \right)$$

$\beta + 2\gamma$, $\alpha + \beta + 2\gamma$, $-\beta$, $\alpha - \beta$, $-\alpha + \beta$, β, α, $-\alpha$, $\beta + 2\gamma$, $\alpha + 2\gamma$, $\alpha + \beta + 2\gamma$, $\alpha + 2\gamma$

$\chi(p) = -2\alpha$

$-\alpha + \beta$, $-\alpha - \gamma$, $\alpha - \beta$, $-\alpha - \beta$, $\alpha + \gamma$, 2γ, $-\beta - \gamma$, $-\beta - \alpha$, $\beta + \gamma$, $-\alpha + \gamma$, $-\beta + \gamma$, $-\beta - \gamma$, $\alpha - \gamma$, $\alpha - \gamma$, $-\beta - \gamma$, $\beta + \gamma$, $\beta - \gamma$, $\alpha + \beta$, $\alpha - \gamma$, $\beta - \alpha$, $\alpha + \gamma$, $\alpha - \beta$

$$\xleftarrow{\quad} T^3 \curvearrowright \mathbb{HP}^2 \qquad\qquad \xleftarrow{\quad} T^3 \curvearrowright Q_4$$