定理 3.8 (Igusa [28])

$$\begin{aligned}(\chi_{35})^2 \;=\;& 2^{-12}\cdot 3^{-9}\chi_{10}\{2^{24}\cdot 3^{15}(\chi_{12})^5 - 2^{13}\cdot 3^9(\psi_4)^3(\chi_{12})^4 \\ & -2^{13}\cdot 3^9(\psi_6)^2(\chi_{12})^4 + 3^3(\psi_4)^6(\chi_{12})^3 \\ & -2\cdot 3^3(\psi_4)^3(\psi_6)^2(\chi_{12})^3 - 2^{14}\cdot 3^8(\psi_4)^2\psi_6\chi_{10}(\chi_{12})^3 \\ & -2^{23}\cdot 3^{12}\cdot 5^2\psi_4(\chi_{10})^3 + 3^3(\psi_6)^4(\chi_{12})^3 \\ & +2^{11}\cdot 3^6\cdot 37(\psi_4)^4(\chi_{10})^2(\chi_{12})^2 + 2^{11}\cdot 3^6\cdot 5\cdot 7\psi_4(\psi_6)^2(\chi_{10})^2(\chi_{12})^2 \\ & -2^{23}\cdot 3^9\cdot 5^3\psi_6(\chi_{10})^3(\chi_{12})^2 - 3^3(\psi_4)^7(\chi_{10})^2\chi_{12} \\ & +2\cdot 3^2(\psi_4)^4(\psi_6)^2(\chi_{10})^2\chi_{12} + 2^{11}\cdot 3^5\cdot 5\cdot 19(\psi_4)^3\psi_6(\psi_{10})^3\chi_{12} \\ & +2^{20}\cdot 3^8\cdot 5^3\cdot 11(\psi_4)^2(\chi_{10})^4\chi_{12} - 3^2\psi_4(\psi_6)^4(\chi_{10})^2\chi_{12} \\ & +2^{11}\cdot 3^5\cdot 5^2(\psi_6)^3(\chi_{10})^3\chi_{12} - 2(\psi_4)^6\psi_6(\chi_{10})^3 \\ & -2^{12}\cdot 3^4(\psi_4)^5(\chi_{10})^4 + 2^2(\psi_4)^3(\psi_6)^3(\chi_{10})^3 \\ & +2^{12}\cdot 3^4\cdot 5^2(\psi_4)^2(\psi_6)^2(\chi_{10})^4 + 2^{21}\cdot 3^7\cdot 5^4\psi_4\psi_6(\chi_{10})^5 \\ & -2(\psi_6)^5(\chi_{10})^3 + 2^{32}\cdot 3^9\cdot 5^5(\chi_{10})^6\}.\end{aligned}$$

上の関係式を $\mathcal{M}$ に制限すると

$$(\chi_{35}|\mathcal{M})^2 = F_1(G_2, H_6, \Theta)^2 F_2(G_2, H_6, \Theta).$$

ただし, $F_1(G_2, H_6, \Theta) = \{\frac{1}{2}(G_2)^2 H_6 - 16\Theta^2\}\Theta^2$. よって, $\chi_{35}|\mathcal{M} = F_1(G_2, H_6, \Theta)H_{15}$ となる $H_{15} \in M_{15}(\Gamma_K)$ が存在して,

$$H_{15}^2 = F_2(G_2, H_6, \Theta).$$

F_2 の形を見ることによって次の結果を得る.

定理 3.9 (Resnikoff [41])

$$\begin{aligned}2^4(H_{15})^2 \;=\;& 2^4\cdot 5^5\cdot\Theta^6 + (G_2)^5\Theta^4 \\ & -2^3\cdot 5^3(G_2)^2\Theta^4 H_6 - 2(G_2)^4\Theta^2(H_6)^2 \\ & +2^3\cdot 3^2\cdot 5^2 G_2\Theta^2(H_6)^3 - 2^5\cdot 3^3(H_6)^5 \\ & +(G_2)^3(H_6)^4.\end{aligned}$$

3.4 Müller の結果

(ϕ, Φ) を 2.3 の中で使われた modular embedding とする.