$\mathcal{M} = \phi(H^2)$ とおく.

$$\phi(z_2, z_1) = \begin{pmatrix} 0 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & -1 & 0 \end{pmatrix} \cdot \phi(z_1, z_2)$$

ゆえ, $f \in M_k(\Gamma_2)$ ならば, $f|\mathcal{M} \in M_k^s(\Gamma_K)$.

定理 3.5 (Hammond [18]) $\theta|\mathcal{M} = \Theta$ (3.1 の theta constant) で $\psi_6|\mathcal{M}$, $\theta^2|\mathcal{M}$ はそれぞれ定理 3.1 の h_6, h_0 の条件をみたす.

3.3 Resnikoff の結果

$$\begin{aligned} \chi_{10} &= -2^{-12} \cdot 3^{-5} \cdot 5^{-2} \cdot 7^{-1} \cdot 53^{-1} 43867(\psi_4\psi_6 - \psi_{10}), \\ \chi_{12} &= 2^{-13} \cdot 3^{-7} \cdot 5^{-3} \cdot 7^{-2} \cdot 337^{-1} \cdot 131 \cdot 593(3^2 \cdot 7^2 \psi_4^3 + 2 \cdot 5^3 \psi_6^2 - 691\psi_{12}) \end{aligned}$$

とおく.

定理 3.6 (Igusa [27]) $M(\Gamma_2) = \mathbb{C}[\psi_4, \psi_6, \chi_{10}, \chi_{12}, \chi_{35}]$.

定理 3.7 (Resnikoff [41])

$$\begin{aligned} \psi_4|\mathcal{M} &= (G_2)^2, \\ \psi_6|\mathcal{M} &= (G_2)^3 - 2^5 \cdot 3^3 H_6, \\ \chi_{10}|\mathcal{M} &= -\frac{1}{4}\Theta^2, \\ \chi_{12}|\mathcal{M} &= \frac{1}{12}\{2(H_6)^2 - 2G_2\Theta^2\}. \end{aligned}$$

ただし, $H_6 = 67(2^5 \cdot 3^3 \cdot 5^2)^{-1}(G_2^3 - G_6)$.