Temperament Class Finding

Given

$$K \in \mathbb{R}, K > 0 \tag{1}$$

$$r, d \in \mathbb{N}; r < d \tag{2}$$

$$H \in \mathbb{R}^{d \times 1}, h_i > 0 \tag{3}$$

$$W = \begin{pmatrix} w_1 & & & 0 \\ & w_2 & & \\ & & \ddots & \\ 0 & & & w_d \end{pmatrix}, w_i \in \mathbb{R} \tag{4}$$

find

$$M \in \mathbb{Z}^{r \times d} \tag{5}$$

where

$$0 < \det\left[MW^2M^T\right] < K \tag{6}$$

minimizing

$$\det\left[MW^2M^T - \frac{MW^2HH^TW^2M^T}{H^TW^2H}\right] \tag{7}$$

(Different row-equivalent M are considered to be the same solution.)

For background, see
`http://x31eq.com/primerr.pdf`
and my current algorithms:
`http://x31eq.com/temper/`