11. Method according to claim 10, wherein the fourth multitude of correction values is determined based on a polynomial fitting comprising:

multiplying the values of the first weighting factors with a polynomial ($y = a + bx + cx^2$) comprising at least one variable for adapting a term of the polynomial;

calculating a value for the variable such that the third multitude of distance values comprises a value below a threshold value based on:

$$\frac{\partial d_i}{\partial P_i} = 2\, EI_i^T (G - EI_i P_i) = 0$$

and

$$P_i = (EI_i^H EI_i)^{-1} EI_i^H\, G_i$$

wherein d_i denotes a distance value of an i-th portion of the audio signals, wherein P_i denotes a vector comprising a form based on $P_i = [p_{0,i} \quad p_{1,i} \quad p_{2,i}]^T$, and wherein EI_i denotes a matrix based on:

$$EI_i = \begin{bmatrix} 1 & I_{1,i} & I_{1,i}^2 \\ 1 & I_{2,i} & I_{2,i}^2 \\ \vdots & \vdots & \vdots \end{bmatrix}$$

wherein $I_{x,i}$ denotes the i-th weighting factor determined based on the first determination rule for the x-th portion of the audio signal.

12. Method according to claim 10 or 11, wherein the third multitude of distance values is calculated based on a further information comprising reflection coefficients or an information related to a power spectrum of the at least one of the set of audio signals based on:

$$EI_i = \begin{bmatrix} 1 & I_{1,i} & I_{1,i}^2 & r_{1,1} & r_{1,2} & \dots \\ 1 & I_{2,i} & I_{2,i}^2 & r_{2,1} & r_{2,2} & \dots \\ \vdots & \vdots & \vdots & \vdots & \vdots & \ddots \end{bmatrix},$$

wherein $I_{x,i}$ denotes the i-th weighting factor determined based on the first determination rule for the x-th portion of the audio signal and $r_{a,b}$ denotes the further

information based on the b-th weighting factor and the x-th portion of the audio signal.

13. Method for encoding an audio signal, the method comprising:

Analyzing the audio signal and for determining analysis prediction coefficients from the audio signal ;

Deriving converted prediction coefficients from the analysis prediction coefficients ;

Storing a multitude of correction values;

Processing the converted prediction coefficients to obtain spectral weighting factors;

combining the spectral weighting factors and the multitude of correction values to obtain corrected weighting factors comprising applying a polynomial based on a form

$$w = a + bx + cx^2$$

wherein w denotes an obtained corrected weighting factor, x denotes the spectral weighting factor and wherein a, b and c denote correction values;

quantizing the converted prediction coefficients using the corrected weighting factors to obtain a quantized representation of the converted prediction coefficients; and

forming an output signal based on representation of the converted prediction coefficients and based on the audio signal.

14. Computer program having a program code for performing, when running on a computer, a method according to one of claims 10-13.