generalised eigenvalue of the between-class and within-class scatter matrices, wherein the determining whether the gamma ray spectrum of the target belongs to the first class comprises computing a distance between the gamma ray spectrum of the target projected by the optimal loading coefficients and a second class containing further gamma ray spectra of further radionuclide sources projected by the optimal loading coefficients; and determining whether the gamma ray spectrum of the target belongs to the first class using the computed distance, wherein the determining comprises determining whether the computed distance is above a threshold distance which is determined by the steps of: determining the mean gross counts in the second class; estimating the standard deviation of the second class using a power law relationship with the mean gross counts; and determining the threshold distance as a predetermined number of standard deviations of the second class.

[00028] According to a second aspect of the invention, there is provided an apparatus comprising: a gamma ray detector configured to acquire a gamma ray signal from a target; an amplifier configured to amplify the gamma ray signal acquired by the detector; a multichannel analyser configured to partition the amplified~~acquired gamma ray~~ signal into energy bins, thereby generating a gamma ray spectrum; a memory configured to store the generated gamma ray spectrum, and a processor configured to execute computer program code to cause the processor to perform a method of processing the gamma ray spectrum of the target, the computer code comprising: code for determining whether the gamma ray spectrum of the target belongs to a first class of a plurality of classes, the first class containing reference gamma ray spectra of one or more radionuclide sources of interest, using optimal loading coefficients associated with the one or more radionuclide sources of interest, wherein the optimal loading coefficients have been obtained using Fisher linear discriminant analysis; and code for generating an output signal dependent on the determining.

[00029] The apparatus may be suitable for, or adapted for, performing the method of the first aspect. The method of the first aspect may be conducted using the apparatus of the second aspect.

[00030] According to a third aspect of the invention, there is provided a computer program code executable by a computer apparatus to cause the computer apparatus to execute a method of processing a gamma ray spectrum acquired from a target, said code comprising:

code for determining whether the gamma ray spectrum of the target belongs to a first class of a plurality of classes, the first class containing reference gamma ray spectra of one or more radionuclide sources of interest, using optimal loading coefficients associated with the one or more radionuclide sources of interest, wherein the optimal loading coefficients have been obtained using Fisher linear discriminant analysis; and code for generating an output signal dependent on the determining.

[00031] The computer program code may be suitable for use in the method of the first aspect. It may be adapted for use in the apparatus of the second aspect.

[00032] According to a fourth aspect of the invention, there is provided a computer readable storage medium having a computer program recorded thereon, the program being executable by a computer apparatus to cause the computer apparatus to execute a method of processing a gamma ray spectrum acquired from a target, said program~~code~~ comprising: code for determining whether the gamma ray spectrum of the target belongs to a first class of a plurality of classes, the first class containing reference gamma ray spectra of one or more radionuclide sources of interest, using optimal loading coefficients associated with the one or more radionuclide sources of interest, wherein the optimal loading coefficients have been obtained using Fisher linear discriminant analysis; and code for generating an output signal dependent on the determining.

[00033] The computer readable storage medium may be the memory of the apparatus of the second aspect. The computer program recorded thereon may be the computer code of the apparatus of the second aspect. The computer program recorded thereon may be the computer code of the third aspect.

Brief Description of Drawings

[00034] One or more embodiments of the present invention will now be described, by way of an example only, with reference to the accompanying drawings wherein:

[00035] Fig. 1 is a block diagram of an apparatus within which embodiments of the invention may be practised;