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(54) Title: RADIONUCLIDE DETECTION AND IDENTIFICATION

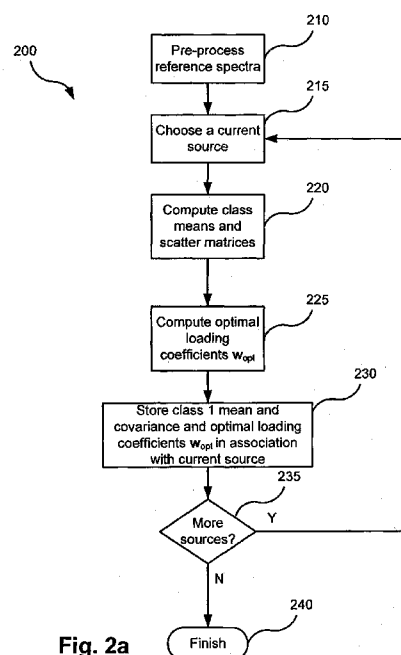


Fig. 2a

(57) Abstract: Described herein is a method of processing a gamma ray spectrum acquired from a target. The method comprises 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 generating an output signal dependent on the determining.