

ABSTRACT

AUTOMATIC FAULT DETECTION AND CLASSIFICATION IN A PLASMA PROCESSING SYSTEM AND METHODS THEREOF

A method for automatically detecting fault conditions and classifying the fault conditions during substrate processing is provided. The method includes collecting processing data by a set of sensors during the substrate processing. The method also includes sending the processing data to a fault detection/classification component. The method further includes performing data manipulation of the processing data by the fault detection/classification component. The method yet also includes executing a comparison between the processing data and a plurality of fault models stored within a fault library. Each fault model of the plurality of fault models represents a set of data characterizing a specific fault condition. Each fault model includes at least a fault signature, a fault boundary, and a set of principal component analysis (PCA) parameters.

FIG. 2