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(54) **Title:** SYNTHETIC WAVELENGTHS FOR ENDPOINT DETECTION IN PLASMA ETCHING

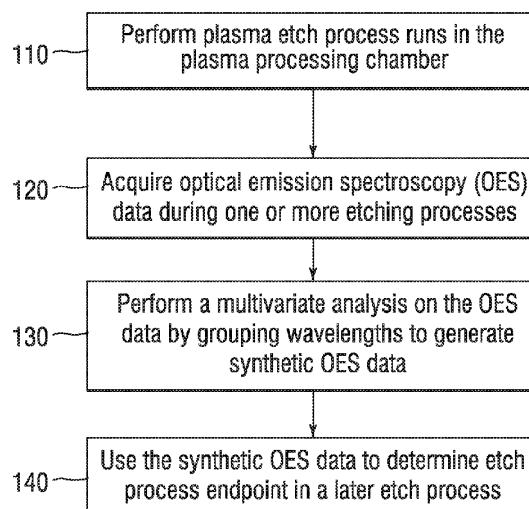


FIG. 2

(57) **Abstract:** Described is a method for determining an endpoint of an etch process using optical emission spectroscopy (OES) data as an input. OES data is acquired by a spectrometer in a plasma etch processing chamber. The acquired time -evolving spectral data is first filtered and de-meaned, and thereafter transformed into transformed spectral data, or trends, using multivariate analysis such as principal components analysis, in which previously calculated principal component weights are used to accomplish the transform. Grouping of the principal components weights into two separate groups corresponding to positive and negative natural wavelengths, creates separate signed trends (synthetic wavelengths).

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