

ABSTRACT

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A technique for widening a range of a plurality of reference spectra for use in estimating a film thickness of a workpiece, such as a wafer to expand a range of film thicknesses that can be estimated is disclosed. A method of producing a reference spectral library generates, by extrapolation, a pre-polishing reference spectrum corresponding to a pre-polishing time which is a time before start of polishing of a reference workpiece and a post-polishing reference spectrum corresponding to a post-polishing time which is a time after end of polishing of the reference workpiece, calculates a plurality of reference film thicknesses corresponding to the pre-polishing reference spectrum, a plurality of actual reference spectra, and the post-polishing reference spectrum, respectively, and creates a reference spectral library by associating the plurality of reference film thicknesses with the pre-polishing reference spectrum, the plurality of actual reference spectra, and the post-polishing reference spectrum, respectively.

FIG. 9