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(54) Title: PARALLEL SCATTEROMETRY OVERLAY METROLOGY

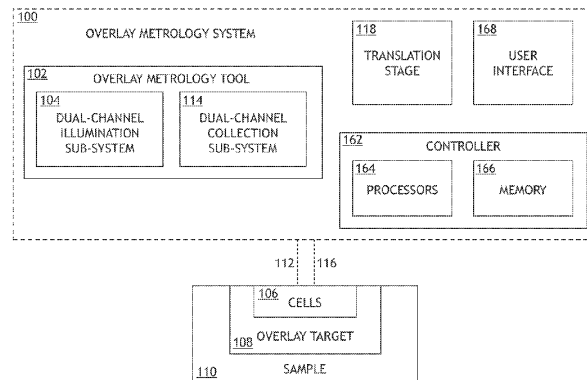


FIG. 1A

(57) Abstract: An overlay metrology tool may include an illumination source to generate a first illumination beam distribution with a first linear polarization and a second illumination beam distribution with a second linear polarization orthogonal to the first linear polarization, an illumination sub-system to sequentially illuminate two or more cell pairs of an overlay target on a sample having orthogonally oriented grating-over-grating structures, a collection sub-system with two collection channels to capture collected light from an illuminated cell pair and filtering optics to direct light from different cells in an illuminated cell pair to different collection channels for detection. The tool may further include a controller to generate separate overlay measurements for orthogonally-oriented grating-over-grating structures in the two or more cell pairs.

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