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(54) Title: **REFERENCE IMAGE GROUPING IN OVERLAY METROLOGY**

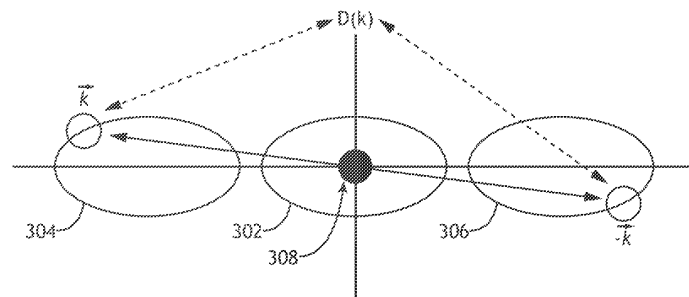


FIG. 3

(57) **Abstract:** An overlay metrology system may include a controller for receiving metrology data associated with a plurality of overlay targets on one or more samples; generating a reference metric for at least some of the plurality of overlay targets based on the metrology data, where the reference metric is associated with one or more properties of the respective overlay targets that contributes to overlay error; classifying the plurality of overlay targets into one or more groups based on the reference metrics calculated for the plurality of overlay targets; generating a reference image for at least some of the one or more groups; generating corrected metrology data using the associated reference image for at least some of the one or more groups; and generating overlay measurements for the plurality of overlay targets based on the corrected metrology data.

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