

METHOD AND APPARATUS FOR CONTROLLING A LITHOGRAPHIC APPARATUS

ABSTRACT

5 A lithographic exposure process is performed on a substrate using a scanner.
The scanner comprises several subsystems. There are errors in the overlay arising
from the subsystems during the exposure. The overlay errors are measured using a
scatterometer to obtain overlay measurements. Modeling is performed to separately
10 determine from the overlay measurements different subsets of estimated model
parameters, for example field distortion model parameters, scan/step direction model
parameters and position/deformation model parameters. Each subset is related to
overlay errors arising from a corresponding specific subsystem of the lithographic
apparatus. Finally, the exposure is controlled in the scanner by controlling a specific
15 subsystem of the scanner using its corresponding subset of estimated model
parameters. This results in a product wafer being exposed with a well controlled
overlay.

[Figure 9]