

Optimization of e-beam Systems for Wafer Defect Inspection and for Die-to-Database Verification

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Abstract

We will discuss the factors limiting the facilities of electron optical part of the systems for wafer defect inspection and for Die-to-Database geometry verification. Such systems are now intensively developing as a substitution for those based on light optics. While e-beam can be focused in a spot a few nanometers only, simple replacement light optics by e-beam does not lead automatically to good result. The main obstacles on this way are: method of acquiring the information (scanning the surface pixel by pixel), statistical character of e-beam generation and secondary electrons signal formation. Finally, it has to be taken proper account for possibility of sample damage because of electron irradiation. Is determined the influence of those factors on the system parameters: throughput, spatial resolution and information quality. From found correlation between these characteristics is possible to find an optimal parameters combination of the system for specific task of defect inspection.