

Defect analysis using Depth from Defocus methods

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Newport Corporation manufactures optical equipment and in particular laser diodes. These diodes are made from semiconductor material and their operation takes place on a flat surface, approximately 200 microns square, onto which two trenches have been etched. If a number of images, at fixed focus, are taken at varying heights above the surface, the images will all be out of focus. However, the blur of each image will depend on the height above the surface. The aim of the project is to determine the diode topography from this sequence of out-of-focus images. This will enable the identification of depth anomalies that might interfere with the operation of the device. Such defects are not detectable by current inspection procedures.