
Integrated circuit metallization edge study by confocal microscopy

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A new method of solid state surface study is confocal microscopy, which sufficiently increases the accuracy of roughness measurement for vertical direction and at the same time the horizontal resolution stays equal to the traditional optical one. Such a resolution ratio for two perpendicular directions yields new unique information, which cannot be obtained even by means of scanning electron microscopy. The paper demonstrates a number of microphotographs showing the metallization edges on silicon and gallium arsenide substrates. It can be seen that relief changes due to elastic deformations of the film and substrate can be found by confocal microscopy near the edge. Furthermore, the method used makes it possible to identify the crystallographic orientation of the substrate.

Keywords: *confocal microscopy, elastic deformation, crystallographic orientation, roughness.*

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