

"DEVICE AND METHOD FOR SURFACE PROFILOMETRY FOR THE CONTROL
OF WAFERS DURING PROCESSING"

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Technical field

The invention relates to a device for carrying out surface profilometry measurements on wafers during processing. It also relates to a measurement method implemented by the device.

The field of the invention is more particularly, but non-limitatively, that
10 of the measurement and dimensional control of the devices in the field of microsystems (MEMS) and in microelectronics.

State of the prior art

The manufacturing methods implemented in microelectronics generally rely on successive steps of the deposition of layers and etching, which result
15 in the production of components in the form of stacks.

A very high degree of flatness of the layers is often necessary. Thus it is known to implement techniques, in particular optical profilometry, for measuring this flatness.

Among the optical profilometry techniques those called "full-field" are
20 known which make it possible to obtain the shape of a surface directly in one or a small number of measurements. There are in particular interferometry techniques which use interferences between a measuring beam reflected by the surface to be measured and a reference beam. Different interferometer architectures are possible, some of which are known by the names Linnik,
25 Mirau, Michelson or Fizeau interferometers.

Optical interferometry techniques are also known based on point-to-point distance measurements with a spot measuring beam which scans the surface. The detection techniques implemented in this case can in particular comprise the confocal, chromatic confocal techniques, or those based on
30 interferometry or low-coherence interferometry (with broad-spectrum sources). They