LASER SYSTEM FOR MEASURING MEMS RELIEF BY DEEP REACTIVE ETCHING

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We present a method of laser interferometry appropriate for precise determination of the depth of etching in a deep reactive ion etching system (DRIE), primarily used for manufacturing of micro-electro-mechanical systems (MEMS). The system uses previous interferometer designs developed at the Institute of Scientific Instruments of the CAS, v. v. i. (ISI). The disadvantage is that it covers only a small spot on the surface of the wafer. This technique also only works for sufficiently reflective films. The advantage of this system over other commercial systems is that it is able to measure the depth of etching in real time and thus prevent too much material loss or even destruction of the sample. We designed and manufactured a measurement system for specific MEMS and its functionality verified with the KLA-Tencor D-120 profilometer.

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