

Abstract zur Diplomarbeit

Fachgebiet: Werkstoffkunde / Chemie
Name: Gratzke, Alexander
Thema: **Untersuchung zur Stabilisierung von Mikrostrukturen in DUV-Resistmaterialien**
Jahr: 2005
Betreuer: Prof. Dr. rer. nat. habil. B. Fleck
Dr. M. Helgert

Abstract

One of the main problems in the production of microstructures in photoresist materials is the appearance of pattern collapse. This phenomenon is characterized by a collapse or complete removal of the resist structures due to capillary forces in the rinse process and occurs especially at high aspect ratios. The ratio of the dimensions of microstructures in the dependence on the occurrence of the collapse was analyzed. It was demonstrated, that the pattern collapse can be reduced by using specific surfactants and developers in the developing process. The exposure of the substrates was accomplished by a UV-laser with a wavelength of 266nm in order to produce high-grade structures. An AFM from Veeco was used to measure and analyze the produced gratings.

Keywords

pattern collapse, capillary forces, NAR, DUV-resist, surfactants

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Year: 2005
Supervising Tutor: Prof. Dr. rer. nat. habil. B. Fleck
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One of the main problems in the production of microstructures in photoresist materials is the appearance of pattern collapse. This phenomenon is characterized by a collapse or complete removal of the resist structures due to capillary forces in the rinse process and occurs especially at high aspect ratios. The ratio of the dimensions of microstructures in the dependence on the occurrence of the collapse was analyzed. It was demonstrated, that the pattern collapse can be reduced by using specific surfactants and developers in the developing process. The exposure of the substrates was accomplished by a UV-laser with a wavelength of 266nm in order to produce high-grade structures. An AFM from Veeco was used to measure and analyze the produced gratings.

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