Multilayer development for EUV Lithography

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Extreme Ultraviolet Lithography at a wavelength of 13.5nm is scheduled to succeed Deep UV imaging schemes in the manufacture of integrated circuits. A major milestone accomplished so far by the EUVL developers consists of the operation of two demonstration wafer scanners, so called Alpha-Demo tools, yielding printed features with sizes down to 30 nm.
To introduce the technology for high volume chip manufacturing by 2009 and beyond, a large program is carried out by Carl Zeiss SMT AG.
This includes the continuous improvement of Mo/Si based multilayer reflective coatings in collaboration with the FOM Rijnhuizen and other partners.
Here we present the status of our present work on some of the major issues like improvement of the reflectance, long-term stability of high-temperature multilayer coatings, the film stress mitigation and the reduction of residual thickness profile errors.